M16715

E xv e
19

St. John's Medical Society.

To be kept ~~days.~~ 2 Months For every day after a fine of 3 d.

	RECEIVED.	FORWARDED.
Dr. RENOUF		
" BUNTING	Dec 20	Feby 20
" CROWDY	Feb 20	April 20
" SIMMS	June 20	Aug 20
" SHEA	Aug 20	Oct 20
" HOWLEY	Oct 20	Dec 20

22300006208

54730

CLINICAL STUDIES

ILLUSTRATED BY CASES OBSERVED IN

HOSPITAL AND PRIVATE PRACTICE.

BY

SIR JOHN ROSE CORMACK, K.B.
F.R.S.E.; M.D. EDIN.; M.D. PARIS;
CHEVALIER OF THE LEGION OF HONOUR;
PHYSICIAN TO THE HERTFORD BRITISH HOSPITAL OF PARIS;
FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON;
FORMERLY PHYSICIAN TO THE ROYAL INFIRMARY AND FEVER HOSPITALS OF EDINBURGH, ETC. ETC.

FIRST VOLUME.

LONDON:
J. & A. CHURCHILL, NEW BURLINGTON STREET.
PARIS: THE GALIGNANI LIBRARY, 224, RUE DE RIVOLI.
1876.

[*Right of Translation Reserved.*]

14830164
5528

M16715

WELLCOME INSTITUTE LIBRARY
Coll. welMOmec
Call No. WS 100
1876
C81a

TO

SIR RICHARD WALLACE, BARONET, M.P.

THE FRIEND OF THE WOUNDED, THE SICK, AND THE POOR;
AND THE ENLIGHTENED GUIDE OF THOSE
WHOM HE SEEKS OUT TO MINISTER ON HIS BEHALF;
THIS COLLECTION OF

"CLINICAL STUDIES"

IS DEDICATED
IN TESTIMONY OF THE
HEARTFELT RESPECT, ADMIRATION, AND AFFECTION
OF

THE AUTHOR.

CONTENTS OF FIRST VOLUME.

I. RELAPSING FEVER. PAGE

1. TREATISE ON THE EPIDEMIC FEVER WHICH PREVAILED IN EDINBURGH AND OTHER TOWNS IN 1843 . . . . . 1—264

2. ADDITIONAL REMARKS ON THE EDINBURGH EPIDEMIC FEVER OF 1843—1844 . . 265—274

II. CHOLERA.

1. NOTES ON THE PATHOLOGY AND TREATMENT OF CHOLERA . . . . . 275—351

2. SPEECH ON CHOLERA AT THE WESTMINSTER MEDICAL SOCIETY, 6TH OCTOBER, 1849 . 352—354

3. CHOLERA-COLLAPSE: HOW SOME RECOVERIES TAKE PLACE . . . . . 355—369

III. SCARLATINOUS NEPHRITIS.

CASE IN WHICH TWO ABSCESSES WERE FOUND IN THE LEFT KIDNEY; WITH SOME REMARKS ON THE CLINICAL SIGNIFICANCE OF ALBUMINURIA . . . . . 370—394

IV. PUERPERAL CONVULSIONS. PAGE

1. PUERPERAL CONVULSIONS: THEIR FREQUENT DEPENDENCE ON TOXÆMIA: EXPLANATION OF THE MORE FREQUENT OCCURRENCE OF RENAL CONVULSIONS IN PRIMIPARÆ . 395—428

2. NOTE: DR. TYLER SMITH ON PUERPERAL CONVULSIONS . . . . . 429—430

3. RELATIONS AND DIFFERENCES BETWEEN EPILEPSY AND PUERPERAL CONVULSIONS . 431—439

V. GRANULAR DEGENERATION OF THE KIDNEY, AND ITS RELATION TO SCROFULA.

PRIMARY AND SECONDARY TOXÆMIA: ILLUSTRATED BY A CASE IN WHICH DEATH OCCURRED SUDDENLY . . . . 440—452

VI. INFANTILE REMITTENT FEVER.

CASE TERMINATING IN HYDROCEPHALUS: DEATH PRECEDED BY CONVULSIONS: KIDNEYS CONGESTED: UREA AND URIC ACID IN THE BLOOD . . . . . 453—466

VII. LABOUR COMPLICATED WITH CAULIFLOWER EXCRESCENCE OF THE UTERUS.

WITH REMARKS ON THE NATURE AND TREATMENT OF THAT DISEASE . . . . 467—484

PAGE

VIII. VALUE OF THE DARK ABDOMINAL LINE AS A TEST OF RECENT DELIVERY . . . . . 485—514

IX. DYSTOCIA FROM CYSTOUS KIDNEY IN THE MATURE FŒTUS.

With Remarks on Intra-Uterine Cystous Disease of the Kidney . . . 515—527

X. HERNIA OF THE UTERUS . . . 529—548

[ORIGINAL TITLE-PAGE.]

NATURAL HISTORY,

PATHOLOGY, AND TREATMENT

OF THE

EPIDEMIC FEVER,

AT PRESENT PREVAILING IN

EDINBURGH AND OTHER TOWNS:

Illustrated by Cases and Dissections.

BY

JOHN ROSE CORMACK, M.D. EDIN., F.R.S.E.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, PHYSICIAN TO THE ROYAL INFIRMARY, AND LATE PHYSICIAN TO THE NEW FEVER HOSPITAL, ETC.

"I know that the truth is in the facts, and not in the mind which observes them."—ROUSSEAU.

LONDON: JOHN CHURCHILL.

EDINBURGH: MACLACHLAN, STEWART & CO. DUBLIN: FANNIN & CO.

PARIS: FORTIN, MASSON, & CIE.

1843.

WELLCOME INSTITUTE
LIBRARY
Coll. welMOmec
Call
No.

TO

JOHN ABERCROMBIE, M.D. EDIN. & OXON.

VICE-PRESIDENT OF THE ROYAL SOCIETY OF EDINBURGH,
PHYSICIAN TO THE QUEEN,
&c. &c. &c.

This Memoir

IS RESPECTFULLY DEDICATED

IN SINCERE TESTIMONY OF ADMIRATION OF HIM

AS A MAN AND A PHYSICIAN,

BY

THE AUTHOR.

PREFACE.

CIRCUMSTANCES, which it is not necessary to explain, render it proper to delay the publication of the Appendix. It will probably not appear till the close of the Epidemic.

The author cannot allow this Memoir to go forth to the world, without publicly and heartily thanking his accomplished friends Dr. Heude and Mr. J. W. Reid for the efficient assistance which they rendered to him when Physician to the New Fever Hospital.

EDINBURGH: 131, PRINCES STREET,
December 20, 1843.

CONTENTS.

INTRODUCTION.

CHAPTER I.—Ordinary or Moderately Congestive Form of the Disease.

CHAPTER II.—Highly Congestive Form of the Disease.

CHAPTER III.—Pathology of the Disease.

CHAPTER IV.—Sequelæ of the Disease.

CHAPTER V.—Treatment of the Disease.

CHAPTER VI.—Statistics of the Cases.

I.

RELAPSING FEVER.

I. Treatise on the Epidemic Fever which prevailed in Edinburgh and other Towns in 1843. [*Reprinted from Edinburgh Edition of* 1843.]

II. Additional Remarks on the Edinburgh Epidemic Fever of 1843—1844. [*From London Medical Gazette*, April, 1849.]

NOTICE TO THE READER.

THIRTY-TWO years have elapsed since I published my account of the Edinburgh Epidemic Fever of 1843, now generally known as the "Relapsing Fever." Since that period, I have seen other, though somewhat differently characterised epidemics of an essentially similar disease. Since that period, I have also read the greater part of much which has been written by later observers and systematic authors regarding Relapsing Fever, including excellent descriptions by physicians who have carefully observed it under a variety of circumstances, and in different climates. My knowledge of the disease is consequently much greater than it was in 1843. Nevertheless, as the basis of my book was the history of a particular epidemic, there is an obvious advantage in reprinting it without the admixture of new matter, and without any alterations, except the correction of a few verbal mistakes occasioned by the necessary haste with which it was carried through the press. For other reasons also, it seems better to reproduce the clinical observations and literary researches exactly as they were originally sub-

mitted to the profession in December, 1843, whilst the epidemic I described was still existing in Edinburgh and other Scottish towns. My work has been out of print for thirty years; and is often now inaccurately quoted by authors, to the majority of whom it seems to be known only at second-hand.

Though the book be short, it represents a long strain of hard work. The clinical reports—sometimes condensed for publication—were invariably committed to writing, *in extenso*, at the bed-side; and the accounts of the *post-mortem* examinations were all written whilst the appearances were being actually observed. For four months I was engaged (with a short interval in the forenoon) six days out of the seven, from early morning till late night, in the wards, the dead-house, or my study, working at the clinical, anatomical, and literary materials embodied in the treatise now reprinted. I may, therefore, be allowed to say that whatever be its faults, they cannot be imputed to superficial observation, or unsteady labour.

INTRODUCTION.

IMMEDIATELY, on commencing the duties of Physician to the New Fever Hospital, I began to report minutely almost every case committed to my charge; and from that time till now I have rigorously followed the same plan, daily devoting a large portion of time to observing and recording the features of the prevailing epidemic, both when interfered with by medicines and when allowed to run its natural course. The leisure of autumn being now passed, and other professional occupations rendering it imperative upon me to devote much less time than heretofore to hospital studies, I venture to publish these observations now, fearing, that by delay, I should not amass much more information and be able only to accumulate imperfect cases. It is hoped, however, that the present notes will not be considered unseasonable or premature, as in the practice of my large Hospital, I have already simultaneously watched, and contrasted with each other, manifold instances of every variety of the disease.

The main object, in what follows, is to present a faithful account of the Natural History and Pathology of the prevailing epidemic, together with such details of the Treatment pursued, as appear to be of practical importance. Every fact stated is put forth almost in the very words in which it was noted down at the moment of observation—a practice

which ought to be considered imperative on all who venture to lay the result of their experience before the profession. It cannot be denied that great hindrance has accrued to the improvement of the Science of Medicine from physicians describing the phenomena of disease, and the supposed effects of remedies, from general impressions remaining in their minds after the lapse of hours, days, weeks, or even longer intervals—in place of founding their statements upon an analysis of facts committed to paper at the very time that they were being observed at the bedside of the living patient, or at the dissection of the dead. Neglect of this somewhat irksome, but only safe system of recording medical experience, has proved one of the most fruitful sources of discrepancy among us, regarding the natural history of diseases, and the selection of therapeutic agents for their treatment. It is in consequence of such laxity, quite as often as from dishonesty, that facts are changed in order to harmonize with theories. "When the mind," says Bacon, "is once pleased with certain things, it draws all others to consent and go along with them; and though the power and number of instances that make for the contrary are greater, yet, it either attends not to them, or despises them; or else, removes and rejects by a distinction, with a strong and pernicious prejudice, to maintain the authority of its first choice inviolate."

It is proposed in the following treatise, first, to describe the disease in its ordinary form, drawing the description from cases, little, if at all, influenced by therapeutic agents. The severer and more unusual varieties of the fever will then be considered, by which we shall be introduced to important details illustrating the next topic—its Pathology. The treatise will also embrace statistical details and practical considerations.

CHAPTER I.

ORDINARY, OR MODERATELY CONGESTIVE FORM OF THE DISEASE.

In ordinary cases, the countenance of the patient has a peculiar appearance, which we may designate *bronzed*, for want of a better term. Though no words can accurately convey what is thus attempted to be described, the appearance itself is very characteristic, and has never failed to arrest and interest the medical visitors to the hospital, to whom it has been pointed out.

The symptoms of invasion are in all cases remarkably similar, both as to their nature, and order of occurrence.

The patient is first seized with coldness, rigors, headache, pain in the back, and more or less prostration of strength; but the latter symptom, it must be remarked, is often not at all urgent, many persons walking long distances from the country to the hospital, especially during the first days of the disease, while a still greater number of the destitute town patients lounge about the streets after their seizure, and come in to us on their legs.

After a period, varying from less than half an hour to several hours, the cold fit terminates, when the severity of the headache greatly increases, and a dry burning heat comes over the whole body, accompanied by much thirst and general uneasiness.

The hot stage is succeeded by a sweat, usually very pro-

fuse, continuing for a number of hours, and seldom attended or followed by any relief to the headache or other pains.

Sometimes, though rarely, there is no sweating for two or three days after the seizure. Occasionally also, there is no well-marked hot stage between the cold and the sweating fits; and in at least a few cases, the sweat breaks out on the face and upper part of the body, whilst the patient is yet in his initiatory rigors.

It is proper to remark that, during the whole course of the disorder, the perspiration has a characteristic disagreeable smell, and is decidedly acid, as is proved by its reddening litmus paper, and that sometimes with intensity.

During the three stages of the initiatory paroxysm, the pulse is rapid, being sometimes as high as 150, seldom below 90, and commonly ranging between 90 and 120. During the rigors, in several cases, I have found it very small and tremulous; in the hot stage, it is often hard and not very easily compressed; at the sweating period, it becomes fuller and softer, and does not exhibit that deficiency in strength, shown after and during the perspirations of a more advanced period of the fever.

For the first 48 hours, the tongue commonly continues moist, exhibiting at the same time a white or brownish yellow fur, excepting at the point, where there is usually a clear space, extending over a space, often, (as in *typhus abdominalis*), shaped like a triangle, the extremity of the tongue forming the base. Afterwards, the tongue becomes dry, and longitudinally streaked in the centre with brown, in which state it continues till the approach or arrival of the crisis, at from the third to the ninth, but in the majority of cases, on the fifth day.

During the first four days, some of the patients have occa-

sional short rigors ; but most commonly, they are in a state of dry ardent fever, with occasional sweatings. These sweatings occur, or at all events commence in most cases, between two and nine A.M. ; but to this rule, there are many exceptions. In a considerable proportion, even of the ordinary and mild cases, nausea and vomiting usher in and attend the sufferings of the first days. Pain at the scrobiculus cordis generally accompanies these symptoms ; not unfrequently, it is present without them. A symptom which uniformly occurs during the first four days, is severe muscular and articular pain. General uneasiness, or pain in the abdomen, (but particularly above the pubes, and over the liver and spleen, when pressure is made on these regions,) is very commonly, but by no means uniformly met with.

So long as the patients suffer much from the symptoms now described, they sleep badly, and frequently not at all, unless opiates are administered. The severe pains in the joints and muscles are often sufficient to account for the bad nights complained of ; but even with those who do not suffer much from this cause, sleeplessness is a distressing symptom up to the crisis.

A remission on the third day is very common. It occurred in all the cases, which I have had an opportunity of attentively observing from the invasion onwards.

On, or about the fifth day, there is an evident manifestation of the violence of the disorder being expended ; and this change for the better is often very sudden and complete. One day, we hear the patient moaning and groaning in pain ; and on the next, he is at ease and cheerful, his only complaints being of hunger and weakness. This state is generally ushered in by a copious sweat ; or by epistaxis or diarrhœa. The sweating was by far the most common critical

5-3

evacuation till the beginning of October, when diarrhœa and dysentery, formerly rare occurrences, became common; and at the end of October they were as usual as sweating. After this change, the pulse, tongue, and skin are quite natural; and the facial bronzing often becomes much less striking. For several days, or till about the fourteenth or fifteenth day of the disease, there is a period of intermission, during which a great deal of lost strength is regained, and a steady improvement goes on in all respects.

On, or about the fourteenth or fifteenth day from the beginning of the disease, the patient relapses; or, in other words, has a paroxysm of fever, similar to that which began his first attack. The relapse takes place late or early, just according to the date of the first convalescence, as will be clearly seen from all the cases to be detailed. It sometimes happens, that the onset and progress of the second attack is attended by severer, and at other times, by milder symptoms than those of the first. In the relapse, abortions most commonly take place.[1] In it also, the muscular and articular pains are very often most severe. Cases, which in the first attack were strictly mild and ordinary, have in the second, become signalized by jaundice, delirium, diarrhœa, dysentery, and other grave symptoms. Such occurrences are, however, not common.

A large number of patients have a second and generally mild relapse, on or about the 21st day. As these relapses take place often after dismissal from the hospital, it was some time before I discovered the frequency of third attacks.

In those who are young and of good constitution, the

[1] In one or other of the attacks, pregnant women almost invariably miscarry. My assistant Mr. J. W. Reid attended a dispensary patient who did not miscarry, till a *second relapse* about the 21st day.

convalescence is rapid and complete. In the old and debilitated, it is otherwise; but I have never seen any one, old or young, die of the ordinary form of the fever.

The above is a succinct account of the course of the disease in its common form.

Some cases are subjoined, which, I beg the reader to remark, are given, not so much as illustrations of the treatment, as of the natural history of the fever.

CASE I.—SUMMARY.—*First attack—Intermission—Relapse on the 16th day. Treatment: cold to the head and aperients.*

Thomas Thomson, a native of Kilmarnock in Ayrshire, aged 23, single, by trade a shoemaker, with fair complexion, blue eyes, good development, and plump healthy appearance, was

Admitted on 16th September 1843 (*seventh day.*) He states, that he was never in Edinburgh till two days ago, when he arrived from London, after an ineffectual search for employment. During the two days of his sojourn in this city, he has, both day and night, been lounging about the streets, or lying in common stairs. Fortunately, the weather has been warm. He states, that he never had an illness before the present; and was only once drunk in his lifetime. His appearance indicates sobriety, and a good constitution.

He was seized with rigors and headache, on the 10th; and from that time till admission, suffered considerably from the latter, and at intervals, from the former. He has had only one slight sweat, which occurred on the 8th, being the

fifth day inclusive from the date of seizure; and on that day, as well as on another occasion (the date of which cannot be accurately ascertained) he had slight attacks of epistaxis. He has taken no medicine, nor had any kind of medical treatment.

The pulse is 120, full, and of good strength. The tongue is much furred, and moist. The bowels have not been opened since the commencement of his illness. There is no eruption of any description on the skin. The muscular power seems to be very much enfeebled. The intellect is clear, and the senses and sensations are quite natural. He states, that during the last two nights he did not sleep; but before that, he passed tolerable nights, though then suffering more than latterly from headache and general pains. The latter are now very slight, but the headache still continues severe. He has no appetite. He has no cough. The respirations are 16 in the minute; and the chest, which is broad and well formed, expands freely. The diaphragm descends easily, and without exciting any unpleasant feelings. He has never had nausea, and at present has no epigastric pain; but he suffered a good deal from this cause before admission. There is no increased dulness or fulness in the region of the liver. His countenance indicates excitement: it is flushed with a deep red, tending to purple, and does not exhibit much of the bronzing.

Abradatur capillitium, et applicetur aqua frigida toti capiti.

Habeat statim enema purgans; vespere, sumat olei ricini ℥*iss.*

18*th September* (*ninth day.*)—Some hours after the application of the cold cloths, the headache became much less severe; and when the case was reported yesterday at noon, the patient said that it had entirely left him. He was freely

purged by the enema and the castor oil. The tongue, skin, pulse, and general aspect, are natural; and now, his only complaint is of debility.

Quiescat.

20*th September* (*eleventh day.*)—He experienced no change till this morning, when, between four and six o'clock, he had some rigors. They were not followed by sweating, but by a comfortable and moist state of the skin which exists at present. He again feels as well as yesterday. The tongue is clean. The pulse is 84, and of good strength. The bowels are confined.

Habeat olei ricini ℥iss statim.

24*th September* (*fifteenth day.*)—Since last report, he has gone on steadily improving. The bronzing has completely replaced the flushing.

25*th September*, 10 P.M. (*sixteenth day.*)—About eight P.M. he was seized with rigors and headache, followed by a feverish heat. At present, he is shaking and trembling as if with cold, but the sensation communicated by applying the hand to any part of the body is that of burning heat. The pulse is 92.

Quiescat.

26*th September* (*seventeenth day.*)—He slept pretty well during the night. To-day, he complains very much of headache, and of severe general pains. The bowels are open. The pulse is 96, and of good strength.

Quiescat.

27*th September* (*eighteenth day.*)—He slept little during the night, which he attributed to the severity of the muscular and articular pains. The headache is not much complained of. The bowels were opened, but not freely, this morning, without the aid of medicine. The skin is cool.

The tongue is slightly coated, and rather dry. The thirst is excessive.

Habeat enema purgans vespere.

28*th September* (*nineteenth day.*)—The bowels were very freely opened by the purgative enema. The pulse is 106, soft, and very compressible. The tongue is much as it was yesterday.

Habeat vini rubri ℥*iv.*

29*th September* (*twentieth day.*)—During last night he slept well, and sweated profusely. The countenance wears the same aspect as yesterday. He feels much better, but still complains a little of headache and general pains. The pulse is 88, and of rather better strength than yesterday. The tongue is moist, and slightly blackened, as if smeared with black currant jelly—an appearance frequently observed in our patients, and especially, though not exclusively, in those who have wine. The bowels are open.

Quiescat. Continuetur vinum.

2*nd October* (*twenty-third day.*)—He is in every respect much better, and makes no complaint, except of weakness. This, however, does not exist to any great extent, for just before this report was commenced, he was seen to walk steadily to the water-closet, a distance of about twenty yards, and return to bed, without appearing fatigued in the least degree.

Omittatur vinum. Habeat victum plenum.

9*th October* (*thirtieth day.*)—There has been a steady and rapid improvement in appearance and strength, since last report. He is now dismissed, strong, and in perfect health. His destitute condition has been the cause of his remaining in the hospital so long after recovery.

CASE II.—SUMMARY.—*First attack—Remission on the 3rd day—Intermission—Relapse (more severe than the first attack) on the 14th day. Treatment: wine and aperients.*

Felix O'Neill, Irish, married, aged 52, a pensioner receiving 1s. 0½d. per diem, residing in the Grassmarket, moderately robust, with light-brown hair, and grey eyes, was

Admitted on 10th August 1843 (*fifth day.*)—He states, that he has never suffered from want of food; and is only occasionally drunk on pension days. Sixteen years ago, he had fever in Queensberry House Hospital, but with this exception, has always enjoyed excellent health. His wife and children are at present suffering from the epidemic. On the floor above his lodging, there occurred several cases, before it appeared in his family.

On the 6th, he was seized with rigors, headache, general pains, prostration of strength, loss of appetite, vomiting, dimness of sight, and vertigo. On the night of his attack, he walked to the Southern Dispensary, where he received an emetic and a purgative. He took the purgative, by which the bowels were freely moved next morning. He slept soundly, and perspired a good deal during the night. After the operation of the purgative, he took the emetic. From the period of seizure, to the present, he has had a continuance of the symptoms of invasion in greater or less intensity, but upon the whole, varying little in degree, except on the 8th (*third day*), when they experienced a notable remission. He has had no epistaxis.

The pulse is 106, full, and of good strength. The tongue is clean, and upon the whole, moist. There is much thirst. The bowels have been opened by medicine taken this morning. The body is covered with a profusion of small dots of

ecchymosis, which may possibly have originated in flea bites. The intellect is clear. There is some headache. He has not slept for the last two nights. The urine is copious, and high coloured. The respirations are 28 in the minute. The diaphragm descends freely. His chief complaints are of debility, general pains, and a disagreeable saline taste in the mouth.

Quiescat.

11*th August* (*sixth day.*) — It appears from his own account, and from that of the nurse, that he passed a restless and almost sleepless night. He complains of great thirst, general uneasiness, and some headache. The pulse is 92, soft, and of tolerable strength. The respirations are as yesterday. He has had several stools since admission.

Applicetur aqua frigida capiti.—Pro potu habeat "imperial."

12*th August* (*seventh day.*) — From a mistake on the part of the nurse, he had a dose of castor oil: the bowels have in consequence been repeatedly moved. He passed a restless, uncomfortable night, but notwithstanding, feels rather better than yesterday. The pulse is 98, and rather feeble.

Habeat vini rubri ℥vj.

Vespere.—Immediately after the noon visit, he had rigors, which recurred during the evening, and exist to some extent at present.

13*th August* (*eighth day.*)—He has slept well, and has an improved appearance. He has taken six ounces of wine since 4 P.M. yesterday.

14*th August* (*ninth day.*)—He is going on well, and makes no complaint, except of the general pains. The tongue is cleaning. The bowels are confined.

Continuetur vinum.—Habeat statim olei ricini ℥iss.

16*th August* (*eleventh day.*)—He is going on well. Since the operation of the oil ceased yesterday, he has had no stool. Complaints are made of general pains and debility; the severity of the former has, however, greatly diminished.

R. *pil. hydrargyri, pil. colocynth. comp.* āā *gr. iiss. Misce, et fiat pil. j horâ somni sumenda.—Cras mane, habeat haust. cathartici* ℥*iij.*

20*th August* (*fifteenth day.*)—*Relapsed yesterday.* The medicine prescribed on the 16th was taken, and produced the desired result. He went on improving, and without taking any drugs, or being confined to bed, till yesterday at 6 P.M., when he was seized with pain in the abdomen, and rigors. The rigors continued till midnight, and, when he was visited at 9 P.M., were attended by a good deal of cold clammy perspiration. The pain left the abdomen this morning after the operation of a dose of castor oil taken last night. In the relapse, the general pains have returned with more than their former severity.

Quiescat.

21*st August, noon,* (*sixteenth day.*)—He fell asleep at midnight, awoke at 5 A.M. much refreshed, and at present, feels much better than yesterday. During sleep, he perspired pretty freely; and the skin is at present soft and natural. The tongue, which is moist, has a streak of yellow fur in its centre. The pulse is 76, and of good character. The pains of the limbs are much relieved. The countenance and bowels are natural. The appetite has returned.

Quiescat.

22*nd August* (*seventeenth day.*)—He slept well; and is free from pain, except in the left knee. He had during the night copious sweats (not preceded by rigors) which afforded no relief to his sensations of uneasiness and general soreness.

The tongue is brown and dry, and he has much thirst, accompanied by anorexia, and a saline bitter taste in the mouth. The skin is hot, and dry. The pulse is 108, and rather small. The countenance is pale and rather depressed. The bowels have been slightly opened. He is still taking the allowance of wine formerly ordered.

Statim sumat pulveris jalapæ compositi ʒj.

℞ *Nitratis potassæ* ʒj,
Spiritus ætheris nitrici ʒss,
Aquæ acetatis ammoniæ, et
Misturæ camphoræ, āā, ʒiv. *Misce.*
Sumat ʒss *quartâ quâque horâ.*

Continuetur vinum.

23*rd August* (*eighteenth day*).—He did not sleep last night, from pain in the knee. The pulse is 110, full and compressible. The tongue is coated with a moist yellow paste. He has much thirst, and complains of a disagreeable saline taste in the mouth. The skin is hot and dry.

Vespere.—He has had several stools, both before and after the forenoon visit, and is at present restless from abdominal uneasiness.

Statim habeat enema amyli cum solutionis muriatis morphiæ ʒi.

24*th August* (*nineteenth day.*)—He did not get the enema of starch and morphia; but, by mistake, a domestic enema was administered. At present, he has no diarrhœa. He slept well. The pulse is 108, and of moderate strength. He feels better; but complains much of debility.

Quiescat.

25*th August* (*twentieth day.*)—At 2 P.M. yesterday, he began to perspire profusely, and continued to do so till mid-

night, sleeping the most of the time. The skin is at present hot, and dry. The tongue is moist; but is still partially covered, in its posterior and central parts, with a dirty yellow paste. He has much thirst. The pulse is 116, and rather feeble. The bowels are open; the general pains have been much relieved, since friction was made some hours ago, with soap and opium linament.

Let him have a pint of ale; and let his daily allowance of wine be reduced to three ounces.

26*th August* (*twenty-first day.*)—He slept well; and did not sweat. He feels better; and is free from pain. The tongue is cleaning, and moist. There is no thirst. The skin is natural. The pulse is 80, regular, but feeble.

Quiescat.

27*th August* (*twenty-second day.*)—He slept well last night; and to-day feels better in every respect.

10*th September* (*thirty-sixth day.*)—Since last report, he has gone on steadily improving. He is now dismissed in perfect health.

CASE III.—SUMMARY.—*Admission on the second day of the fever.—Remission.—Relapse. Treatment: aperients, hydriodate of potash, and wine.*

John Mullans, a Scotchman, married, age 32, a tailor, residing in Rattray's Close, of spare habits, and dark complexion, was

Admitted on 22*nd September* 1843, (*second day.*)—He states, that he has been always in tolerably comfortable circumstances, and generally in the enjoyment of good health. His

wife is at present convalescent from an attack of the prevailing epidemic fever.

On the 21st (yesterday) when sitting at the fireside, he was suddenly seized with chills, rigors, headache, and pain in the back. He continued in this state for about twenty minutes, when, after a few minutes more of uncomfortable heat and restlessness, a profuse perspiration broke out on the upper part of his body, the sweat falling in large drops from his forehead and face. He went to bed in this condition, and slept a good deal at intervals during the night. He awoke this morning in no degree refreshed, and oppressed with feelings of lassitude and general soreness.

The face is distinctly bronzed; and the expression indicates anxiety and suffering. The pulse is 126, full, and soft. The tongue is white and moist. There is not much thirst. The bowels were opened once yesterday, but not to-day. The skin is hot, and dry. There is no eruption of any kind on the skin. His intellect is clear. He has very severe headache. He feels very weak. He has some cough. He complains of severe muscular and articular pains; but has no pain in the chest or abdomen.

Abradatur capillitium; et applicetur aqua frigida diligenter toti capiti donec capitis dolor mitescat.

Habeat enema purgans statim.

23*rd September* (*third day.*)—He did not sleep during the night. The head has been partially relieved by the cold applications. The pulse is 120, and strong. At present, he is bathed in perspiration. The bowels were opened by the enema.

Admoveantur hirudines vi temporibus.—Habeat horâ somni solutionis muriatis morphiæ gtt. xxv formâ haustus.

24*th September* (*fourth day.*)—Only one of the leeches

fastened, and very little blood was obtained by it. The headache, however, has been greatly relieved by the assiduous use of cloths soaked in cold water. The pulse is 116, and smaller than yesterday. The skin is very hot. The general pains are very severe, and are especially acute in the shoulders, back and knees. There is some abdominal pain, which seems to be muscular. Some pale yellow fur coats the tongue, which is painful, and of a bright red colour at the point, where the papillæ are seen appearing above the fur. The bronzing of the countenance is even more decided than on admission. He has had no stool since yesterday.

Habeat olei ricini ℥iss *statim; et horâ somni, enema amyli cum solutionis muriatis morphiæ* ʒj.—*Applicetur diligenter aqua frigida capiti.*

25*th September* (*fifth day.*)—The castor oil and the enema were given as ordered; and the cold water has been very diligently applied to the head. The headache is almost gone. The tongue continues moist, and is cleaner than formerly.

Repetatur enema amyli cum solutionis muriatis morphiæ ʒiss, *horâ somni.*

26*th September* (*sixth day.*)—He slept well last night; and feels very comfortable to-day.

Quiescat.

27*th September* (*seventh day.*)—He slept well last night. In the afternoon of yesterday, he had two sweats, before which, he felt uncomfortable, but after which, he experienced great relief. The bowels are confined. There is no abdominal uneasiness. There is still a good deal of thirst. The bronzing is particularly well marked.

Habeat enema purgans nocte.

28*th September* (*eighth day.*) — Last night, the bowels were freely opened by the enema. The bronzing of the face is more striking than it has been; and the cheek on which he has been resting, has exactly the peculiar colour of a ripe purple plum. There is some improvement in the expression of the countenance. The pulse is 104, and rather deficient in strength. The tongue is clean, but dry and parched. He has no headache, except when he sits up suddenly, which causes temporary throbbing and aching in the temples. He has some slight pains in the knees, and some rather severer pains in the shoulders.

Habeat vini rubri ℥iv.

29*th September* (*ninth day.*)—He has had some sound and refreshing sleep during the night; and at present, has a tendency to slumber, which was also exhibited yesterday. The pulse is 80, and of better strength. The tongue is moist, and, except at the point, has a thin coating of yellowish fur. Sudden movement of the head still excites throbbing and pain in the temples, but not to such an extent as yesterday. He has had no stool since the evening of the 27th. There is neither pain nor uneasiness in the abdomen.

Habeat statim pulveris jalapæ compositi ℥iss; *vespere, habeat enema domesticum si opus sit.*

1*st October* (*eleventh day.*) — The bowels were freely opened by the medicine, the day before yesterday. He has been improving since last report. Last night, he slept well. At present, he makes no complaint. The pulse is 64, and of moderate strength.

Quiescat.

2*nd October* (*twelfth day.*)—He passed a good night; and is much better than he has yet been. He has still very much debility, as has just been shown by the unsteady

tottering step with which he walked down and up the ward, in order to exhibit the degree of strength he possesses.

Quiescat.

3rd October (*thirteenth day.*) — Since yesterday, he has gained a little strength.

4th October (*fourteenth day.*)—He was up for nearly two hours yesterday. He passed a good night, and has no remaining symptoms of the fever excepting the debility, (which is daily diminishing,) and a little of the facial bronzing.

5th October (*fifteenth day.*)—At 3 o'clock this morning he relapsed, having at that hour been seized on awakening from sleep, with rigors and headache. The rigors recurred several times before nine this morning, and were latterly associated with ardent fever. At the first seizure, he felt cold; and the nurse, at his request, put on two additional blankets. He has not sweated yet; but the skin has at present a tendency to moisture. Thirty-six hours have elapsed since his bowels were moved. The tongue is moist, and coated with a white fur. The pulse is 112, and of good strength. At present, the headache is very slight. With the relapse, he has not as yet had any muscular or articular pains.

Intermittatur vinum.—Habeat statim olei ricini ℥iss.—*Habeat pediluvium calidum horâ somni.*

6th October (*sixteenth day.*)—The bowels were opened by the medicine last night. He had some refreshing sleep, and gentle perspiration during the night. Since the last report was made, at noon yesterday, he has felt comfortable till now, when a slight chill, rigors, and headache, have thrown him back. The tongue is clean and moist. He has some pain in the right thigh and left shoulder joints.

℞. *hydriod. potassæ ʒij ; infusi gentianæ ℥iv. M. et solve. Habeat ʒii ex aquâ ter in die.*

7th October (*seventeenth day.*)—To-day, the headache and general pains are very severe.

Continuetur mistura hydriodatis potassæ.—Applicetur aqua frigida diligenter capiti.

8th October (*eighteenth day.*)—The headache was soon relieved by the cold water. He did not sleep during the night, from severe pains in the shoulders, and in the body generally. At present, the least movement in bed causes great pain. The bowels are open. The tongue is white, and moist. The pulse is 120, and of moderate strength. There is much thirst.

Continuetur mistura. Infricetur linimentum saponis cum opio.

9th October (*nineteenth day.*)—After the free use of the soap and opium liniment, he slept well, and has enjoyed for the last twelve hours almost complete respite from the muscular and articular pains. His only complaint is of debility, which exists in a greater degree than in the majority of the patients.

Intermittatur mistura et linimentum.—Habeat vini rubri ℥iv. —Habeat victum usitatum.—Surgat è lecto hodie per horam unam.

22nd October (*thirty-second day.*)—Since last report, he has been gradually, but slowly gaining ground. Pains in the shoulders, thighs, and ankles have occasionally slightly molested him, and do so to some extent to-day. On the 13th, his wine was stopped, and a quart of porter substituted ; on the same day, he began full diet ; the porter is now stopped.

24th October (*thirty-fourth day.*)—He is dismissed, free from all complaint, except of some pain and stiffness in

the left thigh-joint. He has regained much of his lost strength.

CASE IV.—SUMMARY.—*First attack—Remission—Relapse on 17th day—Herpes labialis—Sudamina. Treatment: Aperients, &c.*

Harriet Rose, aged 26, of English parents, born in Edinburgh, a fancy fruit and flower worker, the wife of a strolling Italian organist, resident in a lodging-house in the Grassmarket since May last, with black hair, blue eyes, and spare development, was

Admitted 30th September 1843 (*fifth day.*)—She states that though her general health is not robust, she seldom has had severe illness. Excepting the present attack, she does not recollect having had any serious disorder since childhood.

For two or three days before the 26th, she felt languid and feverish; and on that day, suffered a good deal from vomiting, vertigo, headache, and pain in the back. During the two following days, she continued to have more or less vomiting. On the 28th, she had an emetic from a dispensary pupil. She has had no opening medicine.

The expression is good: the face is suffused with a purple colour. The pulse is 126, and small. The tongue is white, and moist. The bowels are open. The temperature is increased. There is no eruption on any part of the body, excepting on the lips, where there is much herpes labialis. The intellect is clear. She complains of vertigo, headache, a bad taste in the mouth, and muscular debility. There is a distinctly marked abdominal line extending from the ensiform cartilage to the pubes. She was confined five months ago,

and has nursed her infant up to the invasion of the present disorder. Her milk has been scanty. She has not menstruated since her confinement.

Abradatur capillitium, et applicetur diligenter aqua frigida toti capiti.

1*st October* (*sixth day.*)—The headache was relieved, but not removed, by the application of cold water. She has had a good deal of vomiting and diarrhœa: the former ceased after drinking some lemonade; and the latter, after a dose of the decoction of logwood.

2*nd October* (*seventh day.*)—The countenance is improved; and she feels better to-day. The pulse is 120, and of good strength. The bowels are confined. The tongue is much the same as on admission. The skin is hot and dry. The causes of complaint are great thirst, and pain in the shoulders.

Sumat statim pilulam colocynthidis compositam j.

3*rd October* (*eighth day.*)—From her own statement, and that of the nurse, it appears, that she has been very restless, hot, and uneasy, since last report, frequently awakening in a fright from disturbed slumber. At present, she complains of confusion of ideas, and general coldness of the surface. The countenance is abstracted, and little if at all depressed. The conjunctivæ are injected, and the eyes are streaming with tears. The pulse is 98, and rather weak. There is neither headache nor pain in any part of her body. The pill produced no stool.

Vespere, sumat olei ricini ℥*j.*

4*th October* (*ninth day.*)—When seen last night, she was suffering much from cough, and oppression on the chest. The application of a sinapism to the thorax has removed both these symptoms. The bowels have been opened by

the castor oil. The countenance is much improved. The pulse is 96, and of good strength. There is great complaint made of general pains in the muscles and joints: moving in bed causes much suffering, and is attended with great difficulty, the limbs being at times quite powerless: when at rest, she feels easy and comfortable.

Quiescat.

6*th October (eleventh day.)*—The tongue, skin, pulse, and countenance, are natural, excepting that the latter is bronzed. Her strength is returning.

Quiescat.

8*th October* (*thirteenth day.*)—There has been progressive improvement since last report. The general pains and stiffness in the joints, however, are such as to render it impossible for her to put on her clothes: otherwise, she might be out of bed with advantage.

Quiescat.

12*th October* (*seventeenth day.*)—The improvement was going on steadily till last night about 8 o'clock, when she was seized with headache, rigors, and subsequent sweating. She slept badly during the night. At present, there is no headache. The pulse is 134, and of moderate strength. The tongue is coated with a thin, brown, moist fur. There is much thirst. The bowels are open. The skin is hot, and dry.

Quiescat.

13*th October (eighteenth day.)*—Early this morning, she was seized with rigors, followed by cold perspiration. Since that time, she has had numerous chills, with trembling and shaking of the body, followed by cold sweats. At present, she is very uncomfortable; and has a cold clammy moisture on the skin. The pulse is natural. The tongue is clean

and moist. The bowels are open. There is considerable cough. Both cheeks have the ripe apricot appearance to a striking extent.

R. *linctûs opiati* ℥ij. *Habeat* ʒj *pro dosi, tussi urgente.*

14*th October (nineteenth day.*)—Since yesterday, she has almost constantly had profuse cold sweats on the upper part of the body (excepting the arms) as far down as the epigastrium. The chest exhibits a most beautiful example of sudamina: thickly set, on the whole of the anterior and lateral walls of the thorax, are an infinity of white vesicles of the average size of a pin's head, giving to the surface, at a short distance, a soft chalky appearance. Vesicles of the same description are also pretty abundant upon the neck and abdomen, a very few are to be seen on the thighs, and there are none on the arms or legs. The sweat at present on the surface, particularly that on the chest, intensely reddens litmus paper. The bowels are open. There is some cough.

Continuetur linctus.

15*th October (twentieth day.*)—The sudamina have entirely disappeared, and the sweating has ceased. The oppression on the chest, and cough, have greatly increased.

Omittatur linctus.—R. *olei crotonis tiglii; olei olivæ ana* ʒiij. *Misce. Infricetur dimidium parti thoracis anteriori vespere, et reliquum cras mane.*

16*th October* (*twenty-first day.*)—The cough and oppression are somewhat easier. The surface to which the croton oil was applied is red and itching. She is gaining strength, and has a good appetite.—*Iterum infricetur linimentum olei crotonis parti eidem.*

17*th October (twenty-second day.)*—A copious crop of very small pustules has been brought out by the croton oil

There is hardly any cough, and no oppression on the chest. The general pains are much relieved. In every respect she is much better.

Habeat victum plenum.

21*st October* (*twenty-sixth day.*)—Since last report, she has been rapidly gaining strength. She is now dismissed, free from every complaint.

8*th November.*—Since dismissal, she has been much in the hospital in attendance upon her husband. She suffers from œdema, pain, and stiffness of the legs, with general debility; but has a good appetite, and is well in other respects.

CASE V.—SUMMARY.—*First attack—Intermission—Relapse on the* 14*th day, causing abortion—denial of pregnancy of which the signs were certain—bronchitis in both attacks. Treatment: blister to the chest, morphia and ipecacuanha lozenges, and aperients.*

Lucy Gartlan, Irish, single, aged 22, a field-worker, residing in the High Street, of short stature, and strong conformation of body, with red hair, and light eyes, was

Admitted on September 9*th*, 1843 (*third day.*)—She states, that up to the moment of her seizure, she had plenty of food, and was in full employment. She has always enjoyed perfect health. The epidemic fever is at present in the house where she resides.

On the 7th, without any premonitory symptoms, she fell down in a state of exhaustion, when at work in the fields, exposed to a strong midday sun. Immediately afterwards, headache, general pains, and vomiting set in, which together

with sleeplessness, have continued with considerable severity till now. She had no rigors at the invasion of the disease, and very little sweating. She has had no medical treatment, nor has she done anything for herself, beyond taking a dose of sulphate of magnesia. The expression of countenance is excited and restless. The pulse is 110, full, and strong. The tongue is dry, and coated with a white fur. There is much thirst. The bowels are confined. The skin is dry. The temperature of the body is much increased. The intellect is clear. The headache is intense. She has severe muscular and articular pains. The taste is vitiated, and somewhat saline. The muscular power is depressed. There is some cough, and bronchitis. No abdominal uneasiness exists. From the bulkiness, and form of the abdomen, there seems to be good reason to believe, that she is pregnant, although she indignantly denies the possibility of her being in that state.

Habeat trochiscos morphiæ et ipecacuanhæ tussi urgente.

Applicetur vesicatorium pectori.

12*th September* (*sixth day.*)—The cough and bronchitis have left her; and since a sweat yesterday, she has had no unpleasant feelings of any kind, excepting a slight pain in the left shoulder-joint. The tongue, pulse, and skin are natural. She still stoutly denies being pregnant; but offered no objection to the examination which was deemed necessary to elucidate this point. The mammæ are flabby, and neither turgid nor knotty. The nipple lies depressed in a slit-like sulcus in the centre of the areola. Both areolæ, but particularly the right one, are of an unusually deep colour for a virgin, which the patient professes to be. The abdomen is smooth, as in women who have never borne children: the abdominal integuments have a tense appear-

ance, and exhibit no trace of the dark line.[1] Two fingers have now been carried up to the os uteri, and trial made of the internal repercussion test. The pat with which the tumour fell back on the fingers, after it had been jerked upwards, left no reasonable doubt as to the existence of pregnancy. By means of the stethoscope, uterine blowing is heard, and also (perfect stillness having been obtained in the ward) the double tic-tac of the fœtal heart. The only place in which the fœtal heart can be heard, is in a small space, situated three inches below the umbilicus, and a little to the right of the mesial line. Its pulsations are 144 in the minute, (or seventy-two double beats,) whilst those of the mother are 98. She still denies being pregnant; and has exhibited great indignation, whilst the above report was being dictated.

Quiescat.

13*th September* (*seventh day.*)—Every symptom of the epidemic disorder is at present in abeyance, excepting the bronzing of the countenance, which is now more marked than it has yet been.

Since yesterday, she has confessed to the nurse, the possibility of her pregnancy; but stated, that till now she never supposed herself to be in that condition. She has not menstruated for five months.

Quiescat.

---

[1] Dr. Turner of Keith has described (MONTHLY JOURNAL OF MEDICAL SCIENCE for 1842, p. 667) a dark stripe, extending from the ensiform cartilage to the pubes, as a sign of recent delivery. I have found that this is met with in various circumstances, in both sexes. Part of the above details refer to this subject, in the investigation of which I was engaged when the cases detailed in this treatise were reported—a circumstance which will account for occasional allusions to it in my hospital reports.

14*th September* (*eighth day.*)—She continues quite well.

Habeat victum plenum.

20*th September* (*fourteenth day*), *Vespere.*—Till six o'clock this evening, she has continued quite well. In the forenoon, the bowels having been reported confined, a dose of castor oil was ordered, which she took at three o'clock; and at six P.M., in consequence, as she at first supposed, of the medicine, she felt uneasy sensations in the lower part of the abdomen. At present, she has slight bearing-down pains, and the os uteri is somewhat dilated. For some hours past, there has been a flow of a red-coloured discharge from the vagina.

Quiescat.

21*st September*, *noon* (*fifteenth day.*)—After much suffering she gave birth to a still-born male fœtus, of apparently six months, at half-past three this morning. The presentation was natural; and the placenta came away together with the fœtus. There has been no hæmorrhage; and she is doing well in every respect, excepting that there is some return of the bronchitis.

Habeat trochiscos morphiæ et ipecacuanhæ l.

22*nd September* 8 P.M. (*sixteenth day.*)—She passed a feverish, sleepless night, but has slept a good deal during the day, and is at present comfortable. The pulse is 76, and feeble. The chest symptoms have almost disappeared. No uterine tumour can be felt above the pubis. There is no Turner's line.

Continuentur trochisci.

24*th September* (*eighteenth day.*)—She continues to gain strength daily. The only complaint is of some slight remains of muscular and articular pains. The pulse is 90, and of good strength. The tongue is moist. There is some thirst. The skin is natural. The cough is almost gone. The

areolæ are much darker than they were previous to the miscarriage. The discharge is now greenish; it has always been scanty, and is so still. The bowels are confined.

30*th September* (*twenty-fourth day.*)—Since last report she has had Seidlitz powders and cough lozenges from time to time as required. She has gone on steadily improving, and is now well and free from all complaints.

Surgat è lecto hodie.

4*th October* (*twenty-eighth day.*)—She is dismissed in the enjoyment of perfect health, excepting that there are occasional slight returns of the general pains at night. She looks healthy; and has hardly any trace of bronzing. The abdomen has been examined to-day, and almost daily since abortion; but not the slightest trace of a dark abdominal line has ever been detected.

The foregoing cases give a fair view of the Natural History of the disease in its mild or common form.

CHAPTER II.

HIGHLY CONGESTIVE FORM OF THE DISEASE.

ALTHOUGH many of the cases ending in death, or characterized by extreme severity, present symptoms very different from those hitherto detailed, there can be no doubt, that the disease is essentially the same, the difference being one only of degree, as will be more clearly specified hereafter. Both forms of the disease are undoubtedly the result of the same morbid poison.

One of the most common symptoms of the highly congestive form of the disease, is yellowness of the conjunctivæ, and of the whole surface of the body. It generally appears between the third and seventh day, and is always most intense on the face, neck, chest, abdomen, and thighs. The hue of the neck and chest is the most vivid; then comes, of equal or nearly equal brightness, the abdomen; then, somewhat fainter, the thighs; then, considerably paler still, the legs, arms, and forearms; the hands and feet assume their yellowness later, always to a much less extent, and sometimes not at all. The yellowness occasionally appears during the relapse, and not in the first attack. I have seen it present in both.

Associated with the yellowness, there are generally depression, less or more delirium, dusky, and often porter-coloured

urine, black melæna-like stools, and hæmorrhages from some of the mucous membranes. In the worst of the cases, black coffee-ground-like matter is ejected from the stomach, and also passed *per anum*.

In some cases, the black vomit occurs without the yellowness; and, on the other hand, at the autopsy of yellow patients who have had no black vomit, this matter has been found in the stomach and other parts of the alimentary canal.

Enlarged liver and spleen, and tender, tympanitic abdomen are less constant, but yet very usual symptoms in cases characterized by yellowness or extreme congestion. Difficult micturition has been complained of by several of my yellow and purple patients.

A deep persistent purple colour of the face, appearing before, or immediately after the invasion of the disease, is a certain prognostic of danger, and is seldom absent in those destined to be yellow. Since I first made this observation, it has received, among others, two notable verifications in the cases of my assistant, Dr. Heude, and Mary Wallace, one of the nurses. Dr. Heude I pointed out to my other assistant, Mr. Reid, as deeply purple at noon, when we were engaged with the visit:—at 3 P.M. he was in the initial paroxysm of the fever. Mr. Reid and I remarked Mary Wallace becoming first bronzed, and afterwards purple, before she was laid up, and in consequence we advised her to take the chlorinated solution, which she did not do. Both patients became yellow, and narrowly escaped with their lives.

With the exception of the purple countenance, the symptoms which usher in the congestive form of the disease differ little from those attending the disorder in its milder degree.

As has already been remarked, there is some considerable difference in the cases as to the time at which the yellowness appears.

Generally, in the severe cases, there is merely a remission about the seventh day, but no intermission; and even in those who died a few days later, a slight amendment was noticed about the usually critical period.

In my dissections of the purple and yellow cases, I have uniformly found bile in the gall-bladder, a pervious state of all the bile-ducts, and bile in the duodenum. Excessive capillary congestion was always met with; and in the severe cases, exuded blood was found between the muscular and mucous coats of the intestines. The pathological details, however, it will be more convenient fully to analyse and consider, after the subjoined reports, which, I may state, describe the whole of the highly congestive cases admitted into the New Fever Hospital, during the period of my Physicianship. These reports are given (with a few verbal amendments) verbatim, as they were dictated by myself at the bedside, and in the theatre of anatomy; in not one instance have I ventured to supply defective reports from impressions remaining after the lapse of days or even hours.

CASE VI.—SUMMARY.—*Purple countenance—epistaxis—black vomit without yellowness of the skin—slight improvement on the seventh day—Death on the tenth day.—On Dissection, the bile-ducts were found pervious, and the gall-bladder contained inspissated bile: the gastro-intestinal mucous membrane was here and there dark-coloured, with submucous exudation of blood in patches; a considerable quantity of black matter, similar to*

what was vomited during life, was found in the stomach, œsophagus, pharynx, and posterior nares.

James Law, a Scotchman, widower, aged 74, a spare broken-down old man, with light hair and eyes, was

Admitted on 9th August 1843 (*fourth day of the disease.*)—His occupation had been that of a labourer; but for the last eighteen months, he has been an inmate of the House of Refuge, where he states he had enough food.

On the 6th August, he was seized with rigors without headache. There was fever at this time in the House of Refuge.

His face is of a deep purple colour; the expression is not anxious. He complains of general pains, great muscular depression, and slight cough. The pulse is 68. The tongue is moderately moist, clean, and very red at the point. There is no eruption on the skin, which is moist. He is drowsy, but has no headache. He has had no epistaxis, nor other hæmorrhage. The bowels are open.

Quiescat.

10*th August* (*fifth day.*)—The tongue has become dry throughout, and furred behind. The pulse is 78, and stronger than yesterday. The bowels are slow.

Habeat olei ricini ℥j, *statim.*

12*th August* (*seventh day.*)—The bowels have been moved by the medicine. The skin is moist. The pulse is soft, and natural. The tongue is cleaning. He was restless, and raved somewhat during the night.

Habeat vini rubri ℥iv.

Vespere.—He is more incoherent. There has been some epistaxis from both nostrils. Some time after this, he fell, when crossing the ward to the water-closet—which, from

there being no night-chairs or bed-pans as yet in the hospital, the patients are obliged to visit, though quite unfit for such exertion.

13*th August* (*eighth day.*)—To-day, the countenance is greatly depressed. The pulse is 80, and feeble. There has been a copious discharge of black fluid blood from the mouth and nostrils—what was collected measures twenty fluid ounces, (apothecaries' measure,) but from the soaked appearance of the clothes and bedding, it is evident that a considerable additional quantity has been lost. This hæmorrhage commenced at 10 P.M. last night, (when the nostrils were plugged, and other measures taken for arresting it,) and continued to a greater or less extent, till half-past eight this morning, when it somewhat abated. At half-past twelve noon, he could hardly articulate, and the pulse was excessively feeble; but before the visit was completed, it had become 78, and rather firmer, soon after getting a little negus. Then, also, he could articulate, though indistinctly. He has taken about five ounces of wine since the visit yesterday.

R. *acetatis plumbi gr. xxiv; aquæ destillatæ* ℥*vj. Solve. Habeat* ℥*j sextâ quâque horâ.*

Continuetur vinum ad ℥*vj.*

Half-past nine P.M.—He has had a little more epistaxis since the forenoon visit, and has vomited eleven fluid ounces of a dark-coloured fluid, exactly resembling coffee-grounds. He has slept from noon till now, excepting when disturbed by the vomiting; but his sleep was broken. The pulse is 80, soft, and compressible, but quite as firm as at the forenoon visit. None of the mixture prescribed has been administered. The wine has been given cautiously.

14*th August* (*ninth day.*)—After the evening visit last

night, he slumbered till half-past four this morning, when he was roused by a return of the vomiting, and ejected about three ounces of a black fluid, exactly resembling coffee-grounds, and bearing no resemblance whatever to blood. After this, he slumbered on till 7 A.M., when he had an attack of rigors. The nurse states, that he had opisthotonos at this time, being quite insensible, and to all appearance *in articulo mortis*. He has at present, some subsultus tendinum. He lies on his back, with a collapsed, but easy countenance. The breathing is noisy: the respiration 26 in the minute. The pulse is about 120, very weak, but varying considerably as to number within a brief space of time. The impulse of the heart is almost imperceptible, and the first sound is inaudible: the apex is under the sixth rib. There is strong pulsation at the epigastrium, and extending in the mesial line, from the ensiform cartilage to near the pubes. There is no abdominal tenderness on pressure. The tongue is dry, and coated with a black paste, and the teeth have a similar covering. The pupils are not much influenced by light. The eyes are suffused and have a somewhat glazed appearance. The voice is husky and feeble. He seems coherent, and answers questions rationally. The temperature of those parts of the body which have been sufficiently covered is natural, but the feet, and other parts which have been exposed, are cold. Some alvine evacuation has taken place, similar in appearance to the matter vomited. He has taken four ounces of the wine, and an equal quantity of the acetate of lead mixture prescribed yesterday.

To have the abdomen fomented with hot water, and hot bottles applied to the feet.

Continuetur vinum. Intermittatur mistura.

R. *muriatis hydrargyri corrosivi gr. iv; opii gr. viij;*

extracti gentianæ q. s. ut fiat massa, in pil. xvj pares dividenda. Habeat unam secundâ quâque horâ.

15*th August* (*tenth day.*)—He died at half-past ten A.M; having sunk gradually; and having apparently retained his consciousness to the last. He took several of the pills, had no return of the vomiting or epistaxis, and no more stools.

SECTIO CADAVERIS, 17*th August*, *at* 2 P.M., *being fifty-two hours after death.*

External Inspection.—The external surface of the body and the conjunctivæ were found, on minute examination, to have no yellow tinge. There were large livid patches on every part of the body.

Internal Inspection.—Thorax.—The left lung weighed two pounds four ounces:[1] it was much congested behind, but anteriorly, was almost destitute of blood, and in an emphysematous state, depending probably upon incipient putrefaction: upon opening the thorax, it seemed to fill up about one half of its own side. The right lung weighed two pounds thirteen ounces; it was connected to the thorax by firm adhesions at every point of its surface, evidently from inflammation of no recent date. There was scarcely any effusion into the pleural cavities. The pericardium contained an ordinary quantity of fluid. The heart weighed thirteen ounces, and exhibited no softening or valvular disease. In the right auricle, there was a large well-organized firm clot, and also some black half-formed clots in the left auricle: in both ventricles, there were some large clots. The aorta contained a firm white clot.

Abdomen.—The spleen weighed six ounces. It was firm

[1] The organs are weighed by the imperial standard weights; and the fluids are measured by the apothecaries' fluid measure.

and natural in texture; but was certainly of less than the average bulk. The liver, with the gall-bladder and its contents, weighed four pounds six and a half ounces: it was upon the whole natural in colour and consistence. The gall-bladder was greatly distended with bile, resembling treacle in colour and consistence, but of a rather darker colour: it was not ropy, but considerably inspissated. The gall-ducts were pervious. The duodenum was tinged of a deep yellow colour by the bile; and when this was washed off by a properly directed stream of water, the mucous membrane was seen to be injected, and diversified with occasional black patches. The greater curvature of the stomach was much congested; and there seemed to be some extravasation of blood into the submucous areolar tissue in that part of the organ. The mucous membrane was of natural firmness, excepting at the congested parts, where it was much more easily torn by the nail. No ruptured vessel could be detected in the stomach, nor indeed in any part of the alimentary canal, which was examined in its whole extent. Some black matter, similar to that which was vomited by the patient during life, was found in the stomach, œsophagus, pharynx, and posterior nares, in which latter situation it was mixed with mucus. There was some vascularity and congestion of the ascending and transverse portions of the colon, occurring in patches. Under these patches, there was seen a well-marked effusion of black blood, in the submucous areolar tissue. There, as in the stomach, the mucous membrane was firm, excepting at the congested parts. Some granular patches were seen on the mesentery: the mesenteric glands were healthy. The right kidney weighed six and a half ounces, and was healthy: the left weighed five ounces, and was also of the

ordinary aspect, excepting that two hydatids were observed on its posterior surface.

Head.—Upon removing the calvarium, it was found to be firmly attached to the dura mater over the posterior termination of the superior longitudinal sinus; and at this part, the bones were rough. Under the dura mater and arachnoid membranes, there was the usual quantity of fluid. The membranes themselves were not congested. The brain was firm, not vascular, and of a natural colour. The ventricles contained the usual quantity of fluid. The cerebrum weighed two pounds one ounce and a half: the cerebellum, pons Varolii, and medulla oblongata weighed conjointly six ounces.

There was no extravasation of blood into the muscular tissue, in any part of the body incised during the autopsy; but no incisions were made specially for the purpose of determining whether such extravasation existed in other parts of the muscular system. No yellowness was observed in the muscles, serous membranes, bones, or cartilages.

CASE VII.—SUMMARY.—*Epistaxis—jaundice—and delirium—Death on the seventh day.—Autopsy: the serous membranes, conjunctivæ, cartilages of the ribs, &c., were found to be yellow: the bile-ducts were pervious; the gall-bladder contained inspissated bile; the gastro-intestinal mucous membrane was dark-coloured, with black patches, and submucous exudation of blood:—the heart was very soft, and the internal surface stained of a deep yellow colour.*

George Johnstone, a particularly strong and muscular individual, a native of St. George's, Grenada, aged 20, mar-

ried, resident in Edinburgh only during the last eight days, was

Admitted 8th August 1843, (*third day.*)—He was seen by Dr. Craigie on the 8th, and by me, for the first time, on the 9th, when it was impossible to obtain the previous history of his disease either from himself or others.

9th August, noon, (*fourth day.*)—He complains of pain in the temples and abdomen, with general uneasiness. The abdomen is greatly distended. The bowels are constipated. The skin is very dry. The tongue is moist and foul. He passed a very restless night.

R. *pulveris jalapæ compositi* ʒj ; *calomelanos gr. iij. Misce. Statim sumat.*

Habeat enema domesticum vespere, si non prius soluta fuerit alvus.

Vespere.—He feels easier. The powder produced several scanty fluid stools. The enema was administered, and immediately rejected with force, by the escape of flatus. The abdominal distension is considerably diminished.

R. *olei ricini ; aquæ menthæ piperitæ, ana* ʒij ; *solutionis muriatis morphiæ gtt. xv. Fiat haustus cras mane sumendus.*

10*th August* (*fifth day.*)—He slept a good deal during the night ; but looks worse than yesterday. The castor oil draught which was given at half-past five o'clock A.M., has not yet operated. The tympanitis has increased. The skin is as dry as it was yesterday. The pulse is 90, and feeble. The respirations are 42.

Habeat enema purgans statim.

Vespere.—From an irregularity, depending upon the defective service of the hospital, the injection has not been administered. The bowels have not been opened. The tympanitis has increased.

Habeat enema purgans statim.

Habeat olei ricini, et aquæ menthæ pip. ana ℥ij, cras mane.

11*th August* (*sixth day.*)—The countenance is less anxious than yesterday. He had no relief from the enema administered last night; and the nurse could not prevail on him to swallow the castor oil draught this morning. The skin is somewhat softer than yesterday. The eyes are suffused; the pupils are somewhat dilated; and there is yellowness of the conjunctivæ. The pulse is 68, soft, feeble, and regular. The extent of the tympanitis seems to be the same as yesterday, but there is more abdominal tenderness on pressure. The tongue is dry, but not parched, clean at the edges and point, and coated with a brownish fur behind. He had some epistaxis about half-past three o'clock A.M., which was followed by considerable relief to his sensations.

Habeat vini rubri ℥vj.

Admoveantur hirudines vi abdomini infra umbilicum.

R. *olei crotonis gtt. iv; extracti colocynth. compos. gr. xij. Misce, et divide in pilulas iv pares. Habeat unam secundâ quâque horâ donec alvus soluta fuerit.*

Vespere.—The leeches have bled well, and there is still much blood oozing from their bites. There is less abdominal tenderness. He is excessively obstinate, and difficult to manage. In consequence of his violence, the nurse has not been able to administer the pills. He has had no stool.

Let three drops of croton oil be applied to the back part of the tongue; and if he have not a stool within an hour, let him have an enema, with eight drops of croton oil, in about an ounce of gruel, which must be well thrown up.

Habeat liquoris sodæ chlorinatæ ℥ss ; et sumat ex aquâ gtt. xx tertiâ quâque horâ.

12*th August* (*seventh day.*)—He is much worse ; and is at present lying on his back, moaning much. He cannot be roused to answer questions ; but he gives indications of feeling pain, when pressure is made over the abdomen, which communicates the same sensation to the hand as it did yesterday, excepting that the skin is cold and clammy, as on other parts of the body. The teeth, and mouth generally, are encrusted with black sordes. He has had more epistaxis. The conjunctivæ are much yellower than yesterday. The bowels have not yet been moved. He began the chlorinated solution this morning ; and has had more than his allowance of six ounces of wine. In accordance with the prescription of last night, the croton oil was applied to the back part of the tongue ; but from negligence, the enema has not been administered.

Habeat vini rubri ℥x.

Applicetur emplastrum vesicatorium toti capiti.

Injiciatur enema cum olei crotonis gtt. x, et spirit. terebinth. ℥ij statim : et enema domesticum cum solutionis muriatis morphiæ ℥ss post horam.

Vespere.—At half-past three P.M. the enema of croton oil and turpentine was administered ; but it produced scarcely any evacuation. The blister was applied about 1 P.M. About 2 o'clock, he became much calmer. He died, apparently without suffering, at 5 P.M.

SECTIO CADAVERIS.—14*th August*, *half-past* 1 P.M.

External Inspection.—Since death, the conjunctivæ have become more yellow. There are some excoriations on the penis and scrotum, which parts have a bruised appearance.

Internal Inspection.—*Thorax.*—The cartilages of the ribs,

the pleuræ, and the subcutaneous areolar tissue exhibit a deep yellow tinge. In cutting through the cartilages of the ribs, a yellow fluid exuded from their centres. The lungs are healthy, but much congested with blood posteriorly, as was to be expected from the supine position of the patient, previously, and subsequent to death. The right lung weighed 1 lb. 6 oz.; the left, 1 lb. 1 oz. The bronchial mucous membrane is much reddened and congested. The heart weighed 14 oz.: it inclosed one or two imperfect clots: it is very soft: its internal surface is stained dark yellow by the contained blood and serum: all the valves are in a normal state.

Abdomen.—The serous covering of the intestines and abdominal walls is deeply tinged with yellow. There are some adhesions, apparently of old standing, between the gall-bladder and intestines. There is no effusion into the abdominal cavity. There is neither injection nor redness of the peritoneum. The mucous membrane of the stomach is unusually thick, but is apparently healthy. The mucous coat of the duodenum is also very thick: it has a blackish hue, but is in other respects natural. In the colon, there is some black fæculent matter, and its mucous membrane, besides having the same black, dyed-like appearance seen in the duodenum, exhibits black patches at intervals. In these places, the mucous membrane has its natural tenacity. By carefully raising up the mucous membrane from the black patches, these were distinctly seen to be produced by exudation of blood into the submucous areolar tissue. The solitary glands are healthy. The internal surface of the jejunum and ileum presents the same dark colour as that of the duodenum, excepting that it is less deep in hue, and not quite general. The liver weighs 4 lb. 15 oz., and is of the natural colour and consistence, so far as mere cursory inspec-

tion and feeling can entitle one to decide. The bile-ducts are pervious; and on firmly pressing the gall-bladder, a little bile flowed into the duodenum. The gall-bladder is flaccid, and contains rather less than the usual quantity of bile, which resembles tar in appearance, is excessively viscid, and can be rolled out and suspended for some seconds on the knife, as if it were a coherent membrane. The spleen weighed 1 lb. 5½ oz.: it is firm, much congested, and enlarged: its altered condition is obviously of long standing. Both kidneys are yellow in all their textures: the right weighs 8 oz.; and the left, 10 oz. The bladder is healthy, and contains some ounces of deep golden-coloured urine.

Head.—The integuments, when cut into, exhibit a deep yellow colour; and the cranial bones themselves are decidedly of the same hue. The dura mater is of a deep yellow colour. There is a small quantity of yellow subarachnoid effusion. The lateral ventricles contained a drachm of yellow serum, of which a little was also seen at the base of the cranium, when the brain was removed. The substance of the brain is firm, and more vascular than usual.

CASE VIII.—SUMMARY.—*Admitted apparently* in articulo mortis—*jaundice—hæmorrhage from the rectum.—Autopsy: the bile-ducts were found pervious, and the gall-bladder contained tenacious, inspissated, tar-like bile; the gastro-intestinal mucous membrane exhibited vascularity, and submucous exudation of blood: under the endocardium, especially in the left ventricle, there was considerable effusion of blood.*

A. Campbell, a Scotchman, aged 40, married, a shoemaker, residing in Stevenlaw's Close, was

Admitted, at 1 P.M., 25*th August*, 1843.—He lies in a collapsed and almost insensible state. On being roused, in answer to questions, he says, that he has no pain. He can give no account of himself. The extremities are quite cold, and the temperature over the whole body is much reduced. The fingers are white, and the nails blue. The tongue is moist, and coated with a black paste. There is distinct yellowness of the conjunctivæ, and of the surface of the body. The face is sunken, haggard, and of a pale lemon colour. He has singultus at times. He has hæmorrhage from the rectum. The pulse at the wrist cannot be felt. There is, on the right side of the epigastrium, a raw surface occasioned by the application of a blister. Numerous purple spots, as large as peas, are scattered over the arms, chest, and abdomen. No friend or relation accompanied him to the hospital. The nurse has learned that he has been removed from home contrary to the advice of his medical attendant.

As soon as he was laid in bed, heat was applied to the feet, and sinapisms to the calves of the legs. A special watch was appointed. Whisky and wine were ordered to be given as circumstances indicated.

Quarter to 11 P.M.—Since admission, at 1 P.M., he has taken four ounces of whisky, and two ounces of wine. The extremities, but not the trunk, have become much warmer. The pulse is 66, intermitting, very small, and feeble. He appears to be slightly revived, but the singultus continues, being always excited by taking fluids, which he swallows, though with difficulty.

26*th August, noon*.—He slept quietly during the night; and seems to be in much the same state as when reported last night. The pulse is, if anything, a little firmer. He has

taken, since admission, 10 ounces of whisky, and 2 ounces of wine.

Habeat, ex aquâ, liquoris sodæ chlorinatæ gtt. xx, tertiâ quâque horâ.

Continuetur spiritus communis.

He expired in the evening.

Whilst we were engaged with the autopsy, Mr. Thomas Lee, happening to come into the theatre, recognised the body as that of a dispensary patient, whom he had attended from the 18th of August, up to his admission into the hospital, on the afternoon of the 25th. He afterwards had the goodness to send me a copy of the memoranda which he kept of the case. As they render the narrative more complete, they are here introduced.

"*August 18th.*—*Fever?*—Muscles well developed and hard; has been subject to rheumatism, and winter cough; little work, and deficient supply of food; some bronchitis. *August 19th.*—Has ringing in the ears, and a good deal of headache; pulse 100, full, and very firm; has appetite for food. Made to sit up in bed, and hold the bowl, whilst he was bled; about ℥xvj flowed in a full stream; when the pulse became a little softer, the arm was tied up; no sickness was caused, and the only apparent effect of the bleeding was to make the head a little easier. *August 20th.*—Feels much better; the pulse is 120, full, and soft; pains in the left groin, and right shoulder; tongue is dry, and covered with a white fur; the bowels have not been opened by a colocynth and blue pill taken; took a herring, with bread and coffee this morning. He got up last night, after the bleeding, to kindle the fire, and whilst so engaged, fell with his head into the grate. *August 21st.*—Pulse is 112, full, and soft; tongue dry and yellow; skin cool; feels comfortable, and

thinks that he is recovering, but seems a good deal exhausted; cough not troublesome, except on exertion; no headache, except when he coughs; complains of ringing in the left ear; the bowels have not yet been moved, although he has taken seven pills composed of equal parts of the compound colocynth and blue pill mass; his appetite continues; he takes coffee, bread, and gruel. Ordered to take two colocynth and hyoscyamus pills every three hours till the bowels are moved. *August 22nd.*—A great change for the worse; he lies in a lethargic state, approaching to coma, but can be roused; the breathing is drowsy; the voice is almost inarticulate; his tongue seems to be too large for the mouth; complains of weakness of the right leg, but the sensation is equal, and natural in both; he grasps most firmly with the left hand; the bowels have been moved; the pulse is 100, soft, and easily compressed; some hiccup. Ordered three ounces of wine, and a turpentine enema, and if the lethargy continues, a blister to the head. *August 23rd.*—Did not use any of the remedies prescribed yesterday; and is much in the same state. A good many large purple spots have come out on his arms; the pulse is 90, full, soft, and very compressible; the tongue is covered with a clammy, ash-coloured fur; when he breathes, he puffs out the left cheek; some raving; hiccup; no stool. Ordered an aperient, a blister for four hours to the epigastrium, and some wine. *August 24th.*—Pulse is 72, and irregular; the tongue is dark, but moist; the skin, and conjunctivæ are yellow; the purple spots have increased in size and number, and are now to be seen in abundance, on the arms, chest, back, and abdomen; the stools are loose, and black; considerable hæmorrhage from the bowels last night; some hiccup at present, but has had none since yesterday till now; speech improved; has

been much improved by a very little wine. His wife and himself are most anxious for his removal to the hospital, against which hazardous proceeding I have earnestly dissuaded them. *August 25th.*—Pulse is 90, weak, and very irregular; he is very yellow; the speech is almost natural; he passes his stools in bed. Whisky, and pills of acetate of lead and opium prescribed. When I returned at night, I found that he had been carried off almost naked to the New Fever Hospital.—T. L."

SECTIO CADAVERIS, *28th August*, 2 P.M.

External Inspection.—The blistered surface is highly injected with blood, and of a yellower and darker colour than the rest of the body, except the scrotum, the whole of which is ecchymosed. The purple spots are less distinct than during life.

Internal Inspection.—Thorax.—Upon opening the chest, the cartilages of the ribs, and the pleuræ are observed to be yellow. The lungs have a carbonised appearance resembling that which is termed "the colliers' lung:" they crepitate all over; and are not in any part indurated. The left lung weighs one pound twelve ounces: in its upper and middle lobes it is condensed, and a portion of it, when cut into, sunk in water. The right lung weighs two pounds twelve ounces. Both would have weighed more, had the weights been used before the organs were cut into, and blood thereby allowed to escape from them. The heart weighs twelve ounces: it is healthy in structure: its lining membrane is reddened, and in some parts, chiefly in the left ventricle, there is much extravasation of blood under it.

Abdomen.—The peritoneum is yellow, and in some parts injected. The stomach, over one third of its whole surface, exhibits a very black colour, from the presence of blood

effused on the surface of, and under the mucous membrane. The colon is a good deal injected in various places; and in it, and other parts of the intestinal canal, there are black spots caused by the exudation of altered blood. The rectum is intensely injected: there is submucous effusion of blood in it, and a good deal of black, altered, loose blood lies on the mucous membrane: this appearance in the rectum is very similar in kind to that seen in the stomach. The bile-ducts are pervious; and the duodenum is stained with bile, and diversified with black patches, caused by the effusion of blood upon and under the mucous membrane. The gall-bladder is full, but not distended; its contents consist of inspissated bile, like tar, but more glistening, which, when raised on the back of the dissecting-knife, hang down tenaciously in a membranous looking mass. The liver is softer than natural: when cut into, the section exhibits a dingy yellowish colour. The spleen weighs eight ounces: it breaks down readily under the fingers. The blood-vessels of the mesentery are highly injected. A section of the kidneys displays slight yellowness: these organs are much injected, especially around the Malpighian bodies: the right kidney weighs eight ounces, and the left weighs seven ounces.

Head.—Upon removing the scalp, the same yellow colour which was seen in the cartilages of the ribs, pleuræ, and peritoneum, is observed in the areolar tissue, and the bones when sawn through. The dura mater is yellow, and the arachnoid much injected. A section of the upper portions of the brain does not exhibit more than the usual number of red points. Two drachms of fluid were removed by the pipette from the left, and three drachms from the right ventricle: this fluid is muddy, and of a yellow colour. There was half an ounce of bloody serum found at the base of the

brain. Upon stripping off the arachnoid from the convolutions, there were observed upon them—all over the cerebral mass—numerous pultaceous spots, with some rosy specks. The cerebrum weighs two pounds twelve and a half ounces; the cerebellum, pons Varolii, and medulla oblongata, together weigh six and a half ounces.

CASE IX.—SUMMARY.—*Admitted on the 11th day, during the intermission—Relapsed on the 13th day—hæmorrhage from the vagina—yellowness—dyspnœa—sudden Death on the 14th day. Autopsy: the gall-bladder was found to contain bile, and the ducts to be pervious: congestion of organs.*

Jane Merrilees, aged 39, servant in a Clyde Street brothel, was

Admitted 6th October (eleventh day.)—It appears that her present illness commenced with rigors on the 26th September, two days after which, her mistress, suspecting that it was the prevailing fever, dismissed her. She then went to lodgings in the Grassmarket, where she has been till now. She admits, that for years past, she has been addicted to habits of extreme intemperance. Some months ago, she had an attack of hemiplegia, from the effects of which she had considerably recovered. She is very weak, and either unable or unwilling to give any account of the progress of her case since the invasion of the rigors. She says, that she is better to-day than she has yet been; and that she has been slowly improving during the last three or four days. The pulse is 100, and small. The tongue is clean, dry, but not parched. The bowels are open. Her chief complaints are of debility, and sleeplessness. She is much disturbed by the fear of death.

Habeat horâ somni solutionis muriatis morphiæ ℥ss, formâ haustus.

Habeat spiritûs communis ℥iv, formâ "toddy."

8th October (thirteenth day.) — She had the morphia draught at 10 P.M., but has not slept; and feels worse to-day. She is troubled with urgent fits of dyspnœa, some diarrhœa, and pain of the abdomen. The tongue is brown, but moist. The pulse is 96, weak, and small. There is no headache. There is profuse hæmorrhage from the vagina. She states, that the menses appeared, and disappeared naturally, a fortnight ago. The skin has become yellow.

R. misturæ cretæ ℥vj; tincturæ opii ℥j. Misce. Sumat ℥j post singulas liquidas dejectiones. — R. spiritus ammoniæ aromatici, ℥j. Sumat gtt. xx urgente dyspnœâ.

Habeat, horâ somni, enema amyli cum solutionis muriatis morphiæ ℥j.

Continuetur spiritus communis.

9th October (fourteenth day.)—During yesterday afternoon, the yellowness increased somewhat, but she seemed then as well as at the forenoon visit. In the evening, she had some delirium. The ammoniated alcohol, which had relieved the dyspnœa considerably, being finished, a teaspoonful of the tincture of valerian belonging to a neighbouring patient, was given about 4 P.M. in order to allay an alarming paroxysm of dyspnœa, and it apparently did so. She complained much in the evening of a sense of suffocation, and with difficulty swallowed her toddy. Ten minutes before her death she was pretty well, and entered into coherent conversation with the nurse upon indifferent topics. She died at half-past three this morning, during a paroxysm of dyspnœa.

SECTIO CADAVERIS, 10*th October*, 2 P.M.

External Inspection.—The body, which is found plump and fat, does not exhibit the yellowness more distinctly than during life. There is great lividity of the countenance, and anterior part of the neck down to the clavicles : livid patches are also seen all over the body.

Internal Inspection.—Thorax.—Both lungs are healthy. The right lung weighs one pound two ounces ; and the left fourteen ounces. The heart weighs ten and a half ounces, and is natural as to size, and firmness of texture. On dividing the great veins at the root of the neck, a large quantity of very fluid, and very black blood escaped.

Abdomen.—On the inferior part of the anterior surface of the liver, two large white patches of thick and dense lymph are observed : the organ itself has a nutmeg appearance, is very dense, and weighs five pounds eight ounces. The gall-bladder is filled, but not distended with bile. The spleen is greatly enlarged, very soft, and weighs one pound seven ounces. The splenic, mesenteric, and portal veins are full of fluid blood. The duodenum is congested. The other portions of the intestinal canal have not been examined, circumstances having abruptly terminated the autopsy. The uterus is intensely congested, externally and internally. There is much ovarian and uterine disease.

Head.—The brain has been unfortunately examined only in a hasty and cursory manner. Nothing abnormal has been seen in it, except unusual vascularity of the arachnoid.

CASE X.—SUMMARY.—*Epistaxis on the 6th, yellowness on the 7th, symptoms of delirium tremens on the 9th, purple*

spots on the 11th; and sudden Death on the 13th day. Treatment: stimulants, with calomel and opium.—No Autopsy.

William Brunton, house-painter, a native of Edinburgh, and resident there from his birth, at present living in Blackfriars Wynd, aged 32, single, robust, with dark hair and eyes, was

Admitted 1st October, 1843 (*fifth day.*)—He states, that he is much addicted to habits of intemperance, that during the last three months he has had no employment, and, consequently, very scanty aliment.

He was seized, on the afternoon of the 27th September, with rigors, which continued, with a general feeling of cold, till the evening, when he went to bed, and sweated profusely, without any relief to the headache and general soreness, with both of which he was oppressed from the commencement of the rigors. On the night of the 29th, he again sweated a good deal, without any relief. On the 30th, he had, for the first time, general pains, especially in the joints, and prostration of strength. He has never been entirely confined to bed, until his admission into the hospital; and yesterday, he was in the streets all day. He is not aware of having been exposed to contagion.

The expression of countenance seems to be natural, exhibiting, perhaps, slight depression. The face is florid, and in no degree either purple or bronzed. The pulse is 112, full, bounding, and not very easily compressed. The tongue is moist, and coated with a white fur. The bowels are open. The headache is slight, except when he coughs. The intellect is clear. The muscular power is much depressed. He complains of want of sleep, some cough at night, a slightly vitiated taste, and general pains. The con-

junctivæ are much injected, his voice is hoarse, and his throat a good deal inflamed.

Let the throat be enveloped in a hot wet cloth, external to which let another dry cloth be applied: let both remain on for twenty-four hours.

Habeat trochiscos ipecacuanhæ et morphiæ lx. Sumat unum urgente tussi.

2*d October* (*sixth day.*) He feels and looks in every respect better. The florid appearance of the countenance is less intense: there is no decided bronzing. The hoarseness and uneasiness in the throat speedily ceased after the applications ordered had been made; and he says that he now feels his throat perfectly cured. Upon examination, it appears that the inflammation does not now exist. He slept pretty well during the night, being little troubled by cough, which indeed has not annoyed him much since he began to use the lozenges. About seven this morning, epistaxis began, and continued till now (half-past 11 A.M.) when it seems to have ceased: some relief has followed the epistaxis. He states, that, when in health, he is subject to epistaxis, but that he never had it to the same extent as on the present occasion. The tongue is moist, and not more coated than yesterday. The bowels have not been opened since admission. The pulse is 98, and of natural strength.

Habeat enema purgans.

3*d October* (*seventh day.*) The enema operated freely, and gave relief. The respirations are 36 in the minute. The pulse is 112, and of moderate strength. The tongue is moist, and coated with a yellow fur. There is a yellow or saffron colour, of considerable intensity, pervading the forehead, face, chest, and abdomen: it extends to the

knees, where it abruptly diminishes in intensity: upon the legs it is faint and on the feet invisible: upon the arms and forearms, it is more distinct than on the legs, but less so than on the chest and abdomen: upon the hands it can be seen, but is there exceedingly faint.

Habeat pilulas calomelanos et opii vi. Sumat unam quartâ quâque horâ.

Habeat spiritus communis ʒvi. Sumat semiunciam secundâ quâque horâ, formâ "toddy."

4*th October* (*eighth day.*) He rested pretty well during the night. The intensity of the yellowness has greatly diminished. The respirations are 26 in the minute. The pulse is 92, and of good strength. He has taken six ounces of the whisky in toddy, and three of the pills as directed. The urine is scanty, and in appearance resembles muddy porter. He has had occasional fits of delirium, with some violence: at present, he is incoherent; and since this report was commenced, he has made several attempts to get out of bed. He has a good deal of tremor, restlessness, and subsultus tendinum. He keeps up an almost incessant conversation, in a low muttering tone, with individuals by whom he imagines himself surrounded.

5*th October* (*ninth day.*)—He has more restlessness, subsultus tendinum, and delirium. He has not slept since yesterday. The yellowness is somewhat less distinct. He has, at present, slight recurrence of the epistaxis. From neglect on the part of the nurse, he has had only one more of the pills since yesterday; that is to say, in all he has had only four of the calomel and opium pills.

Habeat statim pilulam calomelanos et opii tertiâ quâque horâ.

6*th October* (*tenth day.*)—Soon after the visit yesterday at

noon, he fell asleep, and slept till midnight, when he awoke, feeling much better. At present, he is lying upon his back, slumbering and moaning. The pulse is 86, firmer, and quite regular. The tongue is moist, excepting in the centre, where there is a brown and parched longitudinal streak. He complains much of thirst. Since yesterday, he has had three black stools. The urine has the same appearance as when last reported. The yellowness is slowly going off. There is very little incoherence, and less subsultus tendinum.

Let him have no more of the calomel and opium pills till ten this evening, when he is to have another.

Vespere.—He has had the pill. He remains much as he was at the noon visit, except that the pulse is decidedly weaker.

R. misturæ camphoræ ʒiss ; solutionis muriatis morphiæ ʒiij. Misce. Sumat ʒss secundâ quâque horâ donec dormiat.

Continuetur "*toddy.*"

7th October (*eleventh day.*)—He has not slept during the night ; has had no violence, but incessant low muttering delirium, with subsultus tendinum ; and this is the state in which he lies at present. The yellowness has not diminished since yesterday ; and from there being less of the purple in his cheek, it is more striking to-day. The stools have greatly lost the pitchy appearance of yesterday, but are still very dark-coloured. The pulse is 88, weak and tremulous. The respirations are 25 in the minute : the diaphragm descends freely. The tongue is parched and stiff. On the chest and abdomen, there are some purple, irregularly formed, and sparsely scattered spots. The nurse states, that there is a white sediment at the bottom of his urine : the urine itself is now of a brown colour. He has had seven ounces

of whisky since the noon visit yesterday. He began to take the camphor and morphia mixture at 10 P.M., and has had three doses of it.

To resume the calomel and opium pills, taking one every four hours till noon visit to-morrow.

Increase the whisky to ten ounces.

Omit the mixture of camphor and morphia.

10 P.M.—He is much in the same state as at noon. The pulse is of good strength.

Continue the whisky, and the pills.

To have a blister applied to the head for three hours.

8*th October* (*twelfth day.*)—He continued during the night as when seen at 10 P.M. The bowels have been opened this morning once, and the same pitchy-looking matter passed as formerly. The pulse is 108, weaker than at the visit last night. The pupils are contracted. He lies on his back in a slumbering state, moaning, and making a gurgling noise in the throat.

Omittantur pilulæ.

Continuetur spiritus communis.

9*th October* (*thirteenth day.*)—He continued very much in the same state during the night, but was more restless. He rose unassisted three times to stool, which ought not to have been allowed, in all such cases this being forbidden: each time, he had a black stool, the last, however, was not so dark as the two former. He had his whisky regularly. The last time that he rose was at five minutes to six this morning, when he got up with as much activity as on the previous occasions: he had scarcely been put to bed, when he expired. He died at 6 A.M. Had this man been properly watched by the nurse, death would probably not have taken place so early, and in the manner in which it occurred.

An autopsy was refused by the relations, which is much to be regretted.

CASE XI.—SUMMARY.—*Admitted on the 9th day, during a remission—yellowness on the eleventh day—black altered blood issuing from the rectum—Treatment: stimulants, and blue pill —Death on the nineteenth day. No Autopsy.*

David Matheson, residing in Stockbridge, aged 57, married, with brownish-grey hair, blue eyes, by occupation a gardener, born in Edinburgh, where he has always lived, was

Admitted 7th October 1843 (*ninth day.*)—He states, that for some time past, he has been in poor circumstances, subsisting upon precarious means. He is not aware of having been exposed to contagion.

On the 29th September, he was seized with rigors, headache, severe pains in the back and limbs, and a feeling of great lassitude. He afterwards became hot, but did not sweat till the night of the 5th October (*seventh day*), when he perspired profusely, and has felt considerably better ever since. He was easier to-day than he has been since the invasion of the disorder. The removal from home has greatly fatigued him. Unfortunately, to add to his exhaustion, he was made to walk down to this hospital from the Infirmary waiting-room, in place of being (as is usual in such cases) conveyed in a sedan chair.

The countenance is deeply depressed and purple. The pnlse is of tolerable strength. The tongue is dry and rather brown. The bowels are open. The intellect is clear. His

only complaints are of debility, slight headache, and sleeplessness at night.

Quiescat.

8*th October* (*tenth day.*)—He slept a little during the night. The bowels are open. The pulse is 108, and of good strength. The tongue has become moist, and has assumed a dirty white fur. He has frequent short, dry cough, but no pain in the chest. He makes no complaint.

9*th October* (*eleventh day.*)—Yesterday afternoon, he was observed by Mr. Reid to have a slightly yellow aspect. At present, the neck, chest, and part of the face, have a deep saffron colour: in the countenance, the deep purple and yellow colours struggle for the mastery: the forehead is yellow, the upper parts of the cheeks are purple, and around the mouth, and on the chin, the colour is saffron: these colours do not gradually pass into one another, except at one or two points, but stop abruptly, forming a striking contrast: there is no yellowness of the sclerotics, or in the superior and inferior extremities: the tinge on the chest, back, and abdomen is just sufficient to be detected. He slept a good deal during the night, but moaned much, as if in pain. At present he is easy. The pulse is 96, and rather weaker than yesterday. The tongue is brown and moist. The bowels are confined.

Habeat vini rubri ℥*iv*, *formâ* "*negus.*"

Injiciatur enema domesticum statim.

10*th October* (*twelfth day.*)—He raved and moaned a great deal during the night. This morning he makes no complaint. The countenance has become much more collapsed, and now exhibts much more of the purple than of the yellow. On the other parts of the body, the yellowness is much deeper than yesterday. Upon contrasting the degree of

vividness of the yellow in different parts of the body, it appears to be most intense around the lips, eyes, and ears, and on the neck, down to the clavicles : it exists in a slightly less degree on the chest, arms, abdomen, and thighs : beyond the knees and elbows, it is very faint : it is a shade deeper on the fore-arms than on the legs : the yellowness of the conjunctivæ has become very marked. The pulse is 96, full, and not very compressible. The tongue is stiff, parched, slightly coated, and of a rusty brown colour. The bowels have not been opened since the evening of the 8th. He complains much of thirst, and of pains through the whole body, but especially in the shoulders and knees.

Sumat statim pilulas hydrargyri ij. Vespere, habeat enema cum olei ricini ℥ij.

Pro potu habeat jus bovinum frigidum.

Habeat vinum ad ℥vj, vice ℥iv.

11*th October* (*thirteenth day.*)—A good deal of black matter was evacuated by the assistance of the enema. The countenance is still more depressed than yesterday. The pulse is 76, and feeble. The yellowness continues the same. He slumbers constantly, but is easily roused to answer questions, which he does quite rationally, though during his sleep or slumber he has some muttering delirium. He has a strong harsh voice, which he frequently exerts in calling upon the nurse to give him his hourly dose of negus. He refuses to take the beef tea, and will admit nothing but the negus within his lips. A blue pill has just been administered with some difficuity.

Omittatur vinum. Habeat spiritus communis ℥viij, formâ "toddy."

Vespere.—He looks worse, and has passed several semi-liquid black stools in bed. Most of his urine during the last

two days has been passed in bed, but a little collected since the visit in a urinal, and now under observation, has the same porter colour which has been met with in most of the yellow cases.

12*th October* (*fourteenth day.*)—The countenance has improved. The pulse is stronger. The yellowness is much diminished.

Continuetur spiritus communis, formâ "toddy."

13*th October* (*fifteenth day.*)—The countenance is more dejected. He has had a good deal of disturbed sleep since yesterday. The pulse is 88, and of the same strength as yesterday. The yellowness has entirely left every part of the body, excepting small spaces around the eyes and ears. Both cheeks are deeply purple. He has had no stool since the 11th. He passes his urine in bed. During the last twenty-four hours he has taken eight ounces of whisky, in the form of hot toddy, and also a good deal of beef tea, both cold and hot.—Two blue pills are now administered, being the first medicine of any kind which he has taken since the 11th.

14*th October* (*sixteenth day.*) — In appearance and strength he seems to be very much as yesterday. He passes his urine and stools in bed. On examining the latter, they appear to consist entirely of altered blood, and are identical in appearance with the black vomit in the case of James Law. [See p. 45.] He will not speak, except to call for his toddy, which he does frequently, and strongly. In general, he lies upon his back, moaning much; and when any attempt is made to move him he roars loudly, as if suffering from muscular and articular pains.

Habeat spiritûs communis ℥*x vice* ℥*viij.*

15*th October* (*seventeenth day.*)—The symptoms continue

much as yesterday, but he is certainly in a worse state. He has not raved for forty-eight hours, and has slumbered much. The whole of his whisky has been administered.

Continuetur spiritus communis.

16*th October* (*eighteenth day.*)—Matter like that formerly described as similar to the black vomit, seems to be constantly running involuntarily from the rectum : the quantity passed is very great. He is rapidly sinking. The pulse is small, intermittent, and about 100, as nearly as it can be counted. The extremities are warm.

Continuetur spiritus communis.

17*th October* (*nineteenth day.*)—Since the foregoing report was made yesterday at noon, he continued to sink till 10 A.M. to-day, when he died. Till the time of his death the black matter continued to issue in abundance from the rectum.

The relatives refuse to permit an autopsy, which cannot be sufficiently regretted.

CASE XII.—SUMMARY—*The fever masking phthisis.—Purple countenance.—Death from diarrhœa on the 24th day.—Autopsy : old pulmonary disease of the lungs, ulceration of the bowels, and black patches on the rectum.*

Mrs. Morris, aged 45, (but more like 55), residing in Morrison's Close, thin, pale, and of phthisical appearance, was

Admitted 21st September, 1843, (*sixth day.*) She states that her general health is bad ; that she occasionally drinks too much whisky ; that she has had seven children, and three abortions. The epidemic fever is now in her family.

She became ill on the 16th September, but cannot give a

distinct account of the order in which the symptoms appeared. She says, that during the first twenty-four hours she suffered from headache, general pains, nausea, great debility, intense thirst, and sleeplessness. She took an aperient prescribed by a dispensary pupil.

There is much bronzing. She has felt rather better during this, than during the preceding five days. The pulse is 120, and rather feeble. The tongue is coated with a faintly yellowish fur. She has much thirst; and has had diarrhœa during the last three days. There is no eruption on the skin. She has much headache. The intellect is clear. Her chief complaints are of abdominal, muscular, and articular pain, deafness, and debility. There is no cough. The abdominal pain is general, and from its being relieved by firm pressure, may probably to some extent be muscular. A very distinct Turner's line extends from the ensiform cartilage to the pubes. Her last child was born nine years ago. The catamenia ceased two years ago, since which time she has had leucorrhœa; this has been more profuse than ordinary for the last three or four days.

R. misturæ cretæ ℥vi; *tincturæ opii* ℥i. *Misce. Sumat* ℥i *post singulas liquidas dejectiones.*

R. Acetatis plumbi ℈ij; *pulveris opii gr. iv; aquæ* ℥viij. *Fiat lotio: utatur tepidâ ter in die.*

22*d September*, 4 P.M., (*seventh day.*)—The pulse is 150, and very full. She is bathed in perspiration: she was not sweating when seen at 10 P.M. The diarrhœa has ceased. She is very feeble.

Habeat vinum ad ℥iij, *formâ* "*negus.*"

9 P.M. She has had the wine at intervals, to the extent of three ounces. The pulse is 96, and very compressible. The countenance indicates a very depressed state of the

system. The skin is covered with a cold clammy perspiration. The tongue is moist, and black, as if smeared with black currant jelly. There is much thirst. Great deafness exists.

Continuetur vinum.

23*d September*, 9 P.M., (*eighth day.*)—Being asleep, she was passed at the noon visit. She has dozed a good deal during the day. She is considerably less depressed in countenance than yesterday. The pulse is 66, of better strength, but still very feeble. The tongue is as yesterday. The skin is cool and dry. The bowels have been opened twice, the evacuations being formed and feculent.

Continuetur vinum.

24*th September*, *half-past* 2 P.M., (*ninth day*).—She has had a good night. The countenance is improved. The pulse is 78, and of better strength. There has been one stool. The bronzing is now very apparent.

Continuetur vinum.

25*th September* (*tenth day.*)—There is some slight improvement since yesterday.

Continuetur vinum.

27*th September* (*twelfth day.*)—For two days past, she has been improving, sleeping well during the night, and slumbering a good deal during the day. She has neither sweatings, diarrhœa, nor cough.

Continuetur vinum.

28*th September* (*thirteenth day.*)—She is still improving, though much disturbed with cough and dyspnœa during last night. The bowels are confined.

Admoveatur statim cataplasma sinapis pectori.

Sumat trochiscos ipecacuanhæ et morphiæ urgente tussi.

Habeat, horâ somni, solutionis muriatis morphiæ gtt. xxx, formâ haustûs.

29*th September* (*fourteenth day.*)—She makes no complaint; and is gaining strength rapidly.

Continuetur vinum ad ℥iv, *vice* ℥viij.

2*d October* (*seventeenth day.*)—She continued improving till last night, when she was seized with slight rigors, and sudden loss of the strength which she had regained. The bowels are open. The countenance is purple.

Habeat vini rubri ℥viij.

3*d October* (*eighteenth day.*)—She slept well. The countenance is more purple and depressed than it was yesterday. The pulse is 124, small, and thready. The tongue is clean, and moist. The bowels are rather loose. There is a good deal of cough, with copious expectoration of white frothy mucus.

Continuetur vinum.

Habeat, horâ somni, enema amyli, cum solutionis muriatis morphiæ ℥i.

4*th October* (*nineteenth day.*)—The general appearance is rather improved. The diarrhœa has returned. The pulse continues extremely feeble. The tongue is clean and moist. The enema was administered last night.

Sumat tincturæ opii gtt xv quartâ quâque horâ ad tertiam vicem.

5*th October* (*twentieth day.*)—She has had three doses of the laudanum. There has been no return of the diarrhœa. She says, that she feels much better, and the countenance is certainly improved; but it is to be feared, that the apparent amendment is only the temporary effect of the laudanum.

Quiescat.

7*th October* (*twenty-second day*).—The diarrhœa has returned.

Sumat decocti hematoxyli ℥i *tertiâ quâque horâ.*

8*th October, noon,* (*twenty-third day.*)—Three doses of

the decoction of logwood have been taken, and a starch enema with sixty drops of laudanum administered, with very little relief to the diarrhœa. The countenance is much depressed ; and the pulse is small and weak.

9th October (twenty-fourth day.)—Since the visit at noon yesterday she had only one scanty black stool. She continued, nevertheless, to sink, and died this morning at half-past 12 o'clock, having retained to the last her consciousness of approaching dissolution.

SECTIO CADAVERIS *10th October*, 3 P.M.

External inspection.—The countenance has a blue, shrunk appearance, and there are livid patches on various parts of the body. Turner's line is not quite so distinct as during life. A portion of the integument in the situation of the line having been removed, was subjected to a microscopic examination by Professor Allen Thomson, who could discover nothing except a staining of the cuticle.

Internal inspection.—Thorax.—The right lung, which adheres firmly throughout, to the costal pleura, contains tubercles in various stages : there is a large abscess in the upper part of the left lobe : this lung weighs one and a half pounds. The left lung is also firmly, but less extensively adherent to the costal pleura : it is much healthier than the right : the few tubercles which it contains in the upper part, are in an early stage : its weight is one lb. one oz. The heart is soft and flabby ; its weight is seven oz. All the vessels in the chest and neck pour forth when cut, an unusually large quantity of fluid blood.

Abdomen.—The gall-bladder is full of black, inspissated, and very tenacious bile. There is bile, and feculent matter in the intestines. The liver, with the gall-bladder and its contents, weighs three pounds nine ounces. The small

intestines are highly injected: upon a careful scrutiny, no ulcers can be detected on their mucous coat. On the mucous lining of the transverse portion of the colon, there is an ulcer of the size of a kidney bean, and two others as large as split peas. There are no ulcers in the rectum, but several black patches are seen which owe their colour partly to staining by the matter contained in this bowel, and partly to the sub-mucous exudation of blood. The black matter is apparently altered blood.

CASE XIII.—SUMMARY.—*Admitted on the twelfth day, during a remission—Appearance of yellowness on the eighteenth day—Death on the twenty-third day. No Autopsy.*

Michael Dowlands, coachmaker, aged 42, married, resident in Edinburgh for the last twelve years, and now living in the Grassmarket, of ordinary development, with brown hair, and blue eyes, was

Admitted, 7th October (twelfth day.)—On the 26th of September, he was seized with shivering, headache, and pain in the neck. He has had no pain in the back. He has had some vomiting which he ascribes to medicines taken by the advice of a dispensary pupil. The bowels have been kept open by aperient drugs. He states, that he has not had regular work; but has had, upon the whole, a sufficient supply of food.

The expression of the face is natural. The pulse is of good strength. The tongue is clean. There is a good deal of thirst. The bowels are open. There is no eruption of any kind on the body. The headache is pretty severe. He has a bad taste in the mouth. The muscular power is very weak.

He suffers from severe general pains. He states that he feels much better now than he felt some days ago.

Quiescat.

9*th October* (*fourteenth day.*)—He slept pretty well during last night, and now feels better. The bowels have been opened. The pulse is 108, of good strength. The skin is hot and dry. He complains of pains in the limbs and muscular pains in the abdomen on breathing.

R. Sulph. quiniæ ℈*i*, *infusi gentianæ iv. Misce. Sumat* ʒ*i*, *sextâ quâque horâ.*

11*th October* (*sixteenth day.*)—Since last night he has had some diarrhœa. Nevertheless, his general state is improving.

R. misturæ cretæ ʒ*ij*; *tincturæ opii camphoratæ* ʒ*j. Misce. Statim sumat.*

12*th October* (*seventeenth day.*)—The bowels are regular. He has slept well. He continues improving.

13*th October* (*eighteenth day.*)—His tongue is moist, and slightly coated with a yellow fur. The pulse, and skin are natural. He has some headache. There is a slight return of the diarrhœa. Since yesterday, slight yellowness has appeared in the countenance, and at present, covers it and the anterior part of the neck, the tint extending as low down as the clavicles.

Repetatur mistura cretæ, cum tincturâ opii camphorata.

Omittatur mistura quiniæ.

15*th October, noon* (*twentieth day.*)—In consequence of the depressed state in which he was found yesterday at noon, six ounces of whisky were ordered, all of which have been taken in the form of toddy. During the last few days, he has certainly lost ground. The pulse is 100, full, but easily compressed. The respirations are 34. He has pain in the

chest, and some loose cough. The yellowness is less intense. He changes colour frequently and suddenly. He has pain in every part of the body.

Habeat enema amyli cum solutionis muriatis morphiæ ℥j, *horâ somni.*

Applicetur vesicatorium pectori 4 × 5.

16*th October* (*twenty-first day.*)—There is some slight improvement in every respect, although he has had no sleep since yesterday.

Continuetur spiritus communis.

Habeat, horâ somni, solutionis muriatis morphiæ gtt. xxx, formâ haustus.

17*th October* (*twenty-second day.*)—His appearance is rather better than yesterday. He had several short sleeps during the night. He refused to take the draught. He raves a little at intervals, but at present answers questions rationally. The bowels are loose. He has taken several doses of chalk mixture.

Continuetur mistura cretæ et spiritus communis.

18*th October* (*twenty-third day.*)—Yesterday, at five o'clock P.M., he was to all appearance as at noon, slowly mending, and took some panada along with his toddy. At midnight, he became restless and raved a good deal. In this state he continued till five this morning, when he ceased speaking. He died shortly afterwards, having gradually become comatose.

CASE XIV.—SUMMARY.—*Yellowness; pain, and dulness over the liver.—A mild Relapse on the* 15*th day.—Restoration to health.*

William Robinson, aged 35, a native of Edinburgh, un-

married, by trade a smith, in partial employment during the last few months, often pinched for food, and occasionally intemperate, was.

Admitted, 12*th September* (*fourth day.*)—He is of spare, but strong make; has black hair, dark eyes, and a sallow complexion. He has been lately living in Richmond Street, in a common stair where there is much fever. He had fever in Queensbury House Hospital some years ago.

He became ill on the 9th, with severe headache, pains in the back and legs, some sweating, a good deal of cough, much thirst, but no rigors. Since then he has slept little.

On admission, he is found to have severe headache, general pains, much thirst, a white moist tongue, and a hot, dry skin. The bowels have been twice opened by medicine taken last night. The pulse is 132 and soft. He has a good deal of cough, with expectoration. He is very deaf.

Applicentur hirudines viii temporibus.

Habeat pulveres effervescentes.

13*th September* (*fifth day.*)—The leeches bled well, but afforded no relief to the headache. He has some abdominal tenderness.

Abradatur capillitium, et applicetur aqua frigida toti capiti.

Admoveantur hirudines viii epigastrio.

Habeat olei ricini ℥*j, et solutionis muriatis morphiæ* ℥*ss, formâ haustus.*

14*th September* (*sixth day.*)—He slept pretty well during the night. Since the head was shaved, the headache has been less severe. The bowels are open. The tongue is dry in the centre, and moist along the sides. He has much thirst. The pulse is 88, of good strength. The cough and expectoration continue. There is considerable lachrymation. He complains of pain in the region of the liver.

There is distinct yellowness of the sclerotics, and of the skin of the neck and abdomen.

Quiescat.

15*th September* (*seventh day.*)—The yellowness has become much more decided since yesterday; the whole surface of the body has now a golden aspect, excepting below the knees, where the tinge is much less distinct: the yellowness of the sclerotics is very deep. The pupils are contracted; and the eyes are suffused. This morning, about ten o'clock, in consequence of urgent complaint of pain in the region of liver and pit of the stomach, ten leeches were applied, which bled well, and have afforded great relief. There is still, however, much pain, increased by pressure over a space of some inches in extent, between the mesial line and the cartilages of the false ribs on the right side, as well as a general soreness on pressure over the whole region of the liver. There is no pain or fulness in the region of the spleen. The urine is high-coloured. The bowels have been opened four times: the evacuations are black, fluid, scanty, and fœtid. The tongue is covered with a tenacious yellow fur. There is much thirst. The skin is soft, and of natural temperature. He has a short tickling cough, unaccompanied by any pain in the chest; but it aggravates the abdominal pain and headache by shaking the body. The pulse is 60, full, and compressible.

Applicetur diligenter toti capiti lotio spiritus vini et muriatis ammoniæ.

Injiciatur enema domesticum.

Habeat vomitum sulphatis zinci gr. xij ex aquæ tepidæ ℥viij statim.

Habeat vini rubri ℥iv.

9 P.M. There was copious vomiting of green and brown

matter from the emetic, since the operation of which the patient has felt much better. The yellowness seems to be less distinct; but, from the imperfect light, it is impossible to be certain on this point. The abdominal pain has almost entirely left him. The pulse is 118, and feeble; some hours ago, it was not more frequent than at the noon visit.

Habeat pilulam calomelanos et opii statim; et alteram cras mane.

Habeat haustum c. solutionis muriatis morphiæ gtt. xxx horâ somni.

Injiciatur enema amyli cum solutionis muriatis morphiæ gtt. xxv cras mane.

16*th September* (*eighth day.*)—He feels better, and is much improved in appearance since yesterday forenoon. He took the medicines which were ordered yesterday. He has not slept. The yellowness of the countenance is less intense, but remains as vivid as formerly on the other parts of the body. One of the leech-bites has continued bleeding, and, in consequence, part of his bed-clothes and bedding are soaked with blood. The bleeding has now been checked by the application of nitrate of silver, and the pressure of adhesive plaster. The abdominal pain has almost entirely ceased. There was one scanty stool this morning. The pulse is 78, and much improved in strength. The tongue is coated with a yellow paste in the centre, but is cleaning at the sides. There has been slight epistaxis for the last eight hours; but it seems now to have ceased. He has had five ounces of wine, as negus, since yesterday.

Continuetur vinum ad ℥*vi.*

Continuetur pilula calomelanos.

Habeat haustum cum solutionis muriatis morphiæ ℥*j horâ somni.*

7 P.M. He feels better than at the noon visit. The leech-bite, which was bleeding in the morning, has not bled any more since the application of the caustic, but there has been a good deal of hæmorrhage from another; around all the leech-bites, there are large patches of ecchymosis. The pulse is 78, regular, and of moderate strength. The tongue is moister and cleaner than in the morning, and is partially covered with a dark brown, instead of a yellow paste. The urine is scanty, and resembles dark muddy ale in colour. There has been some return of the epistaxis, but no headache, abdominal uneasiness, or general pains. He hears more readily than in the forenoon. He has had wine negus twice.

17*th September* (*ninth day.*)—He slept well. He looks more collapsed than yesterday, and complains of confusion of ideas. His eyes have a keen, inquiring expression. The yellowness of the countenance seems to be still diminishing, and it is also less on the abdomen, but is more perceptible than formerly on the legs. There is no pain in any part of the abdomen, either on coughing or from firm pressure of the hand. The leech-bites have not bled since last report, but there has been considerable epistaxis, and, according to his own statement, some hæmoptysis. The pulse is 98, and of good strength. He is inclined to sit up in bed, and does so for some minutes at a time without any feeling of exhaustion. The bowels are regular. The urine is less turbid than it was yesterday, but it has the same colour. There is some abdominal distension.

Continuetur vinum.

Habeat pilulam calomelanos et opii ter in die.

Intermittatur haustus horâ somni.

18*th September* (*tenth day.*)—He passed a good night,

and is very much improved in appearance. He has no confusion of ideas. The yellowness has almost disappeared from the face, fore-arms, and hands: although it has also much faded on the other parts of the body, it is there still quite visible: in the sclerotics, it is decidedly less evident. The skin feels natural. The tongue is moist and much cleaner, but on some parts has a dark paste. The bowels have been twice opened since the visit yesterday. The pulse is 84, small, and regular. There has been no more bleeding from the leech-bites, nor any more epistaxis.

Continuentur omnia.

19*th September* (*eleventh day.*)—His bowels have been once opened. The tongue is moist, and cleaning. There is less thirst. The pulse is 88, of good strength. The skin is cold.

20*th September* (*twelfth day.*)—He is going on well. There is no abdominal pain. There is a very faint dark streak on the skin extending from the umbilicus to the pubes. The mouth is not affected by the pills, which he has taken regularly. He has a good deal of cough.

Omittantur pilulæ.

Utatur linimento opiato.

21*st September* (*thirteenth day.*)—He slept well, and feels better. The yellowness has left the surface, and the sclerotics. The tongue is slightly furred, but is moist. The countenance is natural. The deafness has increased. The pulse is 72, of good strength. He makes no complaint of pain in any part. The dark abdominal line is broader, but less defined than yesterday. The cough is much less.

Quiescat.

22*d September* (*fourteenth day.*)—The patient goes on improving. The dark line is seen faintly extending between

the pubes and the ensiform cartilage. The appetite is very good.

To have porridge in the mornings, as he dislikes tea.

23*d September* (*fifteenth day.*)—He is improving. Since the 20th he has been taking no medicines, excepting the wine.

Quiescat.

24*th September* (*sixteenth day.*)—He has not been so well since yesterday evening. He slept badly last night. The pulse varies from 100 to 120, and is deficient in strength. The tongue is moist, but covered with a thin white fur. To-day, and for some days past, there has been more deafness. The bowels have been opened thrice since last night. There is some dry cough.

Habeat trochiscos ipecacuanhæ et morphiæ xxv.

25*th September* (*seventeenth day.*)—The pulse is as yesterday, but more irregular. He did not sleep during the night, but slept a little this morning. He has not had any lozenges. He is much troubled with cough, and has a good deal of white frothy expectoration. At present he complains of some cold, with slight rigors, which, he says, he has always more or less at this time of day (between twelve and one o'clock.) He feels no pain in any part of the body, except a slight headache which he attributes to the cough. The bowels are open.

Habeat trochiscum ipecacuanhæ et morphiæ sextâ quâque horâ.

Sumat haustum cum solutionis muriatis morphiæ ℥ *xxx horâ somni.*

27*th September* (*nineteenth day.*) — He goes on improving.

Habeat victum oryzæ.

1*st October* (*twenty-third day.*)—Since last report he has been going on well, and now makes no complaint, except of debility and general pains. He is allowed to rise to-morrow.

R. Extracti gentianæ ʒj. *Divide in pilulas xii quarum sumat unam quartâ quâque horâ.*

5*th October* (*twenty-seventh day.*)—He has been up during the greater part of each day since the 2d; and has gone on steadily improving. He makes no complaint of weakness of the limbs. The general pains have ceased. The appetite has returned.

Habeat victum plenum.

9*th October* (*thirty-first day.*)—He is dismissed at his own request, without any remaining symptoms of the fever, except some general weakness and slight œdema of the ankles.

1*st November.*—Since the patient left the hospital, he has gained but little strength. When seen to-day at his house, he was labouring under general dropsy, apparently independent of organic disease and solely caused by debility. He has been managing himself very badly, and has not sufficient aliment.

CASE XV.—SUMMARY.—*In the first attack* (*on 6th day*) *occurred yellowness, dark-coloured urine, bilious vomiting, and delirium. Critical sweating took place on the ninth day. Relapsed on the eighteenth day. The symptoms of the former attack were repeated, with the exception of yellowness and delirium, and with the addition of sweating. No epistaxis or other hæmorrhage occurred in this case.—Recovery.*

Dominick White, an Irishman, aged 47, married, residing

in Currie's Close, Grassmarket, by occupation a labourer, was

Admitted 27th August (fourth day of the disease.) He states, that he has lived in Edinburgh for the last ten years. For the last twelve months, he has been only partially employed, and has had, at times, insufficient aliment. He says that he is descended from a healthy family, has always enjoyed good general health, and never had, before this attack, a disease similar to it, nor any disease termed fever. His appearance is robust. He has scanty grey hair, and light eyes.

On the 24th August, at 12 noon, he was seized with rigors, pain of the head and back, and general soreness over the whole body. He has kept his bed since the attack till now. During this period, there has not been the slightest epistaxis, cough, vomiting, sweating, or diarrhœa; and his symptoms have been only a continuance of those which first seized him, with the addition of anorexia and much thirst. He has been generally chilly, and has passed restless nights. On the day after his attack he was seen by a medical gentleman, who prescribed some aperient powders, which operated freely, but without relieving any of the symptoms. His wife and family are at present convalescing from the prevailing epidemic fever.

His pulse is 100, of moderate strength. The tongue is furred, but moist. There is much thirst. The bowels were opened to-day before admission. The temperature is somewhat increased. There is no eruption. He sleeps badly at night. The headache is severe. His intellect is perfectly clear. He complains of a saline taste in the mouth. He has no appetite. His muscular power is prostrated. He is racked with general pains. He lies most easily on the left

side. The chest expands freely and without pain. The respirations are twenty in the minute.

Habeat calomelanas gr. v horâ somni.

Etiam, pulveris jalapæ compositi ʒj cras mane.

Admoveantur hirudines iv temporibus.

Abradatur capillitium.

28*th August* (*fifth day.*)—He feels easier to-day. His head is much relieved. The bowels have been opened by the medicine.

R. sulphatis magnesiæ ʒiij; acidi sulph. diluti gtt. x; syrupi zingiberis ʒj; aquæ menthæ piperitæ ʒij. Misce, et fiat haustus statim sumendus.

R. antimonii tartarati gr. j; spiritus ætheris nitrosi ʒss; aquæ fontis ʒviij. Misce. Sumat unciam tertiâ quâque horâ.

Vespere.—During the afternoon, he sweated for about two hours, after which, he enjoyed temporary relief.

30*th August* (*seventh day.*)—Since admission he has slept little. The whole surface of the body acquired a decided yellow tinge during yesterday. His pulse is 104, of tolerable strength. The tongue is moist, and coated in the centre with a thin, dirty-yellowish paste. The bowels have been pretty open. He has twice had some bilious vomiting. The urine is scanty and of a dark-red colour. There is no pain over the spleen, or any part of the abdomen; and during a full inspiration, the diaphragm descends freely without causing any uneasiness.

Habeat pilulam hydrargyriri gr. v statim; et cras mane haustûs cathartici ʒiv.

Vespere.—Soon after noon (when the above report was written) he became incoherent, and could with difficulty be restrained in bed, so great was his propensity to wander about the ward.

31*st August* (*eighth day.*)—He has not manifested any violence; but during the night he disturbed his fellow-patients by incessantly talking, and, when not under the observation of the nurse, leaving his bed. His eyes are at present restless. The skin has a much yellower hue than yesterday; and upon examination, it appears, that the bald scalp, neck, chest, and abdomen are the parts most vividly tinged. There is some very slight tenderness under the false ribs of the right side; but no pain is excited by pressure on any other part of the abdomen, which feels soft, and natural over its whole extent. The tongue has the same appearance as yesterday. The pulse is 104, full, but very compressible. The bowels were moved by the blue pill. The cathartic draught has just been taken (half-past 1 P.M.) He is free from pain, excepting in the left knee-joint.

Habeat spiritûs communis ℥viij, *formâ "toddy."*

R. pilulæ colocynthidis compositæ; pilulæ hydrargyri, ana gr. x. Misce et divide in pilulas iv. Sumat unam tertiâ quâque horâ.

Habeat haustum cum solutionis muriatis morphiæ ℥ss *horâ somni.*

1*st September* (*ninth day.*)—Soon after the visit yesterday, he slept for about two hours, during which time he lay on his back, breathing stertorously, and bathed in warm perspiration; after this sleep, he had a waking interval of an hour, and again fell into a slumber. He slept well during the night, after taking the morphia draught. He has taken all the whisky made into toddy. He has at present a disposition to slumber. He is quite coherent, which he has been, with one very slight exeeption, since the first sleep of yesterday. There is a decided diminution in the intensity of the yellow

tinge, which, however, is still deep and striking. The tongue is cleaner and moister than yesterday, but far back there is still a good deal of the dirty yellow paste formerly mentioned. His pulse is 68, soft, and compressible. His only complaint is of feebleness.

Continuentur spiritûs communis et haustus horâ somni.

R. pilulæcolocynthidis compositæ ; pilulæ hydrargyri, ana gr. iiss. Misce. Fiat pilula horâ somni sumenda.

Sumat haustûs cathartici ℥iv cras mane.

10*th September* (*eighteenth day.*)—Relapsed.—For some time past he has been quite well and gaining strength. The medicines and whisky were discontinued on the day after the date of last report. This afternoon, he was seized with headache, general pains, vomiting, and sweating, which symptoms were ushered in by heat of skin, without rigors. The bowels are confined.

Habeat enema domesticum statim.

11*th September* (*nineteenth day.*)—He passed a restless night, from disturbance in the ward. His countenance is pale and rather depressed. The bowels have been freely opened by the enema. He has slight general pains but no headache. At present he is perspiring profusely and vomiting much.

Habeat misturæ creasoti ℥j statim ; et post horas duas si opus sit.

Vespere.—No vomiting having occurred after the first dose of the creasote mixture, he did not take more of it. His linen has been shifted since he ceased to perspire. He now feels comfortable. The skin is moist. The countenance has improved and the expression is more lively. No yellowness has appeared in the relapse.

Quiescat.

12*th September* (*twentieth day.*)—He feels better, and slept well till disturbed by the vomiting, which returned with severity at three o'clock, A.M., but was checked by one dose of the creasote mixture. The tongue is moist, but somewhat mottled with a white fur. He perspired a good deal during the night. He complains of nothing but debility.

Quiescat.

Repetatur mistura creasoti si opus sit.

13*th September* (*twenty-first day.*)—He slept badly, but does not feel worse. The pulse is 84, and rather deficient in strength. He has had vomiting six or eight times since the visit yesterday: the matter ejected last, which is now under observation, seems to be chiefly water, saliva, mucus of a rusty colour, and a small quantity of inky sediment. The nurse states that the previous ejecta differed from this in being decidedly green, but were in other respects similar. Since yesterday, he has had three one-ounce doses of the creasote mixture. He has no pain in any part of the abdomen. The bowels are open.

Habeat misturæ creasoti ℥*j sextâ quâque horâ.*

To have two bottles of soda water, and effervescing soda powders in moderation.

14*th September* (*twenty-second day.*)—He feels better, and is better in every respect. He has taken three ounces of the creasote mixture as directed. He has had no return of the vomiting.

Quiescat.

Continuetur mistura creasoti si opus sit.

15*th September* (*twenty-fourth day.*)—He has had no return of the vomiting. The tongue is clean, and the appetite is returning.

Quiescat.

20*th September* (*twenty-eighth day.*)—For some days past, he has been sitting up a little. Though the tongue is a little coated to-day with a white fur, he may be said to be going on well in every respect.

R. sulphatis magnesiæ ℥*j ; acidi. sulphurici aromatici* ℥*j ; aquæ* ℥*xij. Misce. Sumat* ℥*ij ex aquâ omni mane.*

Vice "soda-water," habeat cerevisiæ ℥*xij.*

22*nd September* (*thirtieth day.*)—He feels quite well, and is daily gaining strength.

Habeat victum plenum.

Dismissed on 29*th September* (*thirty-seventh day.*)—Since last report, he has been in perfect health. He is now dismissed strong and cured.

CASE XVI.—SUMMARY.—*Yellowness on the* 8*th day—Remission—Relapse on the* 16*th day, accompanied with a return of the yellowness—profuse sweating on* 19*th day—sudden occurrence of extreme debility on the* 22*nd day.—Treatment ; an emetic, calomel and opium, opiates and stimulants.—Recovery.*

Francis Rose, aged 37, married, of spare habit, with hazel eyes, an Italian strolling organist, arrived in Edinburgh about ten days ago upon one of his occasional visits, was

Admitted, October 21*st* (*fifth day.*)—On the 17th October he was seized with severe pain in the bowels, and rigors, followed by profuse sweating of the upper part of the body. He describes the perspiration, as having fallen from the face and forehead in large drops. He had no more sweating till to-day, when his skin became moist, but the perspiration

was checked by exposure on removing him to the Hospital. He has been very actively purged by a practitioner in the Grassmarket.

He states that he is healthy, and generally of regular habits. He attributes his seizure to having visited his wife,[1] while she was a patient in this Hospital; but the justice of this opinion cannot, of course, be determined. There is no fever in the house where he has been lodging.

The pulse is 85. The tongue is covered with a white fur. The bowels are rather confined. There is no eruption. The intellect is clear. He is free from headache. He sleeps badly at night, which he attributes to his extreme thirst.

Sumat statim olei ricini ℥i.

22*nd October* (*sixth day.*)—Yesterday, some hours after admission, a slight temporary moisture came out on the skin. He did not sleep last night. The pulse is 100, and soft. The tongue is clean, and moist. Since taking the castor oil, he has had four stools. He complains of some headache, pain in the epigastrium, and general pains.

Abradatur capillitium.

Sumat tincturæ hyoscyami gtt. xx tertiâ quâque horâ, ad tertiam vicem.

23*rd October* (*seventh day.*)—He slept little last night. The pulse is 85, of moderate strength and regular. The tongue is moist, and coated with a white fur, except at the point, where there is a red triangle with its apex pointing inwards.

Quiescat.

24*th October* (*eighth day.*)—He did not sleep last night.

---

[1] For an account of her case vide p. 33.

The pulse is 84, soft, and feeble. There is a dusky-orange tinge on the surface of the body: it is most intense upon the face, neck, chest, and abdomen, and gradually fades towards the knees, where it abruptly becomes much less vivid, but still continues to manifest itself in considerable intensity nearly to the ankles: the arms present the same degree of yellowness as the inferior extremities below the knee: the transition from the deep yellow of the chest and neck to the fainter hue of the arms, is more gradual than that observed at the knee, but may still be said to be abrupt. There is much increase of dulness in the hepatic region; and a good deal of pain is excited when pressure, either firm or gentle, is made in that situation. There is pain across the epigastrium, and also, though in a less degree, over the spleen and above the pubes. The patient has considerable nausea, but has vomited only the water which he has taken, and a very small quantity of ropy mucus of a lightish brown colour. He has made water twice to-day without pain. He has had one stool. Neither the alvine nor the urinary evacuations have been kept for inspection. He complains of dryness of the mouth, and a good deal of thirst. The tongue, which is chapped and coated with a dark yellow fur, has the same appearance at the point as yesterday.

R. *sulphatis zinci gr. xv; aquæ ℥vi. Misce. Statim sumat.*

Habeat vini rubri ℥i formâ "negus," peracta vomitione.

R. pilulas calomelanos et opii iv. Sumat unam secundâ quâque horâ.

25*th October* (*ninth day.*)—The emetic was administered yesterday, between 3 and 4 P.M., and speedily emptied the stomaeh without causing much straining or subsequent depression. The matter ejected consisted chiefly of water.

Immediately after the operation of the emetic, he had some port wine negus, which he vomited; but he retained in his stomach a small quantity given to him shortly afterwards. He felt much better soon after the vomiting ceased, and continues so at present. He has had four calomel and opium pills since yesterday. The bowels have not been opened during the last twenty-four hours; but there is no pain of any part of the abdomen, except immediately above the pubes, where there is some uneasiness, increased by pressure, and also a constant feeling of tightness: there is some tympanitic distension of the abdomen. The urine is scanty, and of a brown colour, but not so dark as porter: it is passed with some pain and difficulty. He slept at intervals during the night, and felt comparatively comfortable, being perfectly free from pain, from which, at present, he does not suffer in the least. The yellowness is perceptibly less intense. The pulse is 64, soft, and regular. The tongue is much as it was yesterday. The skin is soft, and of natural temperature. The expression of the countenance is improved. He has had three ounces of wine in addition to what was ordered yesterday forenoon.

Injiciatur enema fœtidum statim.

Continuetur vinum rubrum ad ℥*v.*

Habeat calomelanos gr. v, formâ pilularum ij, et haustum cum solutionis muriatis morphiæ ℥*ss horâ somni.*

26*th October* (*tenth day.*)—The injection was administered, and operated four hours afterwards. He has also taken the calomel as ordered. Last night the bowels were opened once, and again, this morning. The stools, on both occasions, were fluid, of a dark-brown aspect: they bore a striking resemblance to thick hare-soup, both in colour and consistence. The yellowness, tongue, skin, and urine, remain much as

yesterday. The pulse is 74, soft, and natural. There is still some tympanitis; but it has much diminished. He says that he has a sweet taste in the mouth. His expression continues to improve.

Injiciatur enema fœtidum.

Habeat pilulas calomelanos et opii ij vespere.

27*th October* (*eleventh day.*)—He has slept at intervals since last report. The yellowness is passing into a brassy bronzing. The tongue is clean and moist. The pulse is 68, soft, but feeble. There still remains a very slight degree of tympanitis. There has been a discharge of dark-brown fluid matter from the bowels. The urine is somewhat lighter in colour.

Augeatur vinum rubrum ad ℥vj.

Habeat pro victu jus bovinum.

28*th October* (*twelfth day.*)—He has gone on improving since yesterday. The countenance is rapidly becoming bronzed.

Habeat pilulam calomelanos et opii vespere.

Habeat olei ricini ℥j horâ somni.

30*th October* (*fourteenth day.*)—He has improved considerably since last report. The bowels were moved yesterday by the castor oil taken the preceding night; and this morning he had a stool naturally. The countenance has a dirty coppery appearance: the expression is tranquil. The skin has a soft natural feeling. The yellowness of the surface of the body is extremely faint, but still remains quite apparent: it has left the conjunctivæ. The pulse is 58, soft, and rather compressible. The tongue has a greyish colour owing to its being slightly coated with fur, and it feels clammy rather than moist. He has had neither sweating nor diarrhœa since admission.

R. sulphatis quiniæ gr. xxiv; extracti gentianæ q. s. ut fiat massa in pilulas xxiv dividenda. Sumat unam ter in die.

1*st November* (*sixteenth day.*)—During yesterday afternoon and last night, he felt cold, and shivered: he had also much headache and vertigo, which latter he feels at present. He has had no sweating. The yellowness has become more marked. The pulse is 100, firm, and regular. The tongue is coated with a grey adhesive paste. The bowels are confined. There is much thirst; great heat of skin; and general pains.

Intermittantur pilulæ sulphatis quiniæ.

Habeat pilulam hydrargyri sextâ quâque horâ.

Injiciatur enema domesticum cras mane.

2*d November* (*seventeenth day.*)—He slept a little during the night. The countenance is rather more dejected than yesterday. The yellowness is considerably diminished; but is still deeper than it was before the relapse. This morning, he had two dark-coloured stools, feculent, but not formed. The urine has somewhat of the porter colour, but is not so dark as in the first attack. The pulse is 100, and of tolerable strength. The tongue is moist, and almost clean. He has severe general pains, but no epigastric tenderness. He has had no vomiting.

To have an allowance of sago.

Habeat enema cum solutionis muriatis morphiæ ℥ss vespere.

3*d November* (*eighteenth day.*)—Last night, between seven and eight o'clock, he vomited a quantity of brown matter, tinged with green. The vomiting was checked by an ounce dose of the creasote mixture: it recurred, however, between nine and ten o'clock, when a similar dose was administered; and since then he has not been troubled with it. The total quantity of fluid ejected on both occa-

sions has been now found to measure eight ounces. He complains of great pain in the epigastrium. He has an extremely weak and dejected appearance. The face is bronzed. The pulse is 100 and feeble. No food has been taken for the last thirty-six hours, his only sustenance having been wine negus.

Augeatur vinum ad ℥xij.

Applicentur cataplasmata assiduè epigastrio.

4*th November* (*nineteenth day.*)—As he vomited the wine several times during yesterday afternoon, he was ordered four ounces of whisky, mixed with forty drops of the solution of the muriate of morphia. He vomited the first half ounce of this mixture, which had been administered in the form of toddy, but retained the remainder which he took undiluted. In addition to the morphiated whisky, he has had eight ounces of wine. According to his own statement, and that of the nurse, he was much better at seven o'clock this morning than he was yesterday, or than he is at present. The countenance is improved. Perspiration began at four o'clock A.M., gradually became more copious, and continued to exude very profusely till ten o'clock, when his shirt and sheets were shifted. This is the second sweat which he has had since admission, and the fourth since the invasion of the disease. The sweating has relieved the general pains, but not the pain in the back. The epigastric tenderness is very slight. The pulse is 62, soft and regular, but very feeble. The tongue is much as yesterday. There have been two stools since yesterday, which are much less dark in colour, and quite fluid.

Habeat vini rubri ℥vj tantùm: sed bibat ℥vj spiritûs "whisky" cum solutionis muriatis morphiæ ℥iss.

8*th November* (*twenty-third day.*)—He continued very

much in the same state as that described in the report on the 4th, till last night, when he suddenly became weaker, and dissolution seemed to be impending. His countenance is extremely dejected. He complains of severe pains in the joints. His pulse is 54, and of tolerable strength: a few hours ago, it was 45 only, but since then he has had some wine. The bowels were opened this morning, and the matter evacuated is quite natural. The tongue is clean, and moist. The skin is soft. The intellect is clear, and he has had no incoherence. He vomited a good deal of the wine.

Omittatur vinum.

Continuetur spiritûs "whisky" ad ℥vj, cum solutione muriatis morphiæ.

9*th November* (*twenty-fourth day.*)—There is a marked improvement in his appearance to-day. His pulse is 84, and of somewhat better strength.

10*th November* (*twenty-fifth day.*)—The improvement in the general appearance continues. The pulse is 80, and of the same strength as yesterday. The tongue is clean. The bowels are open. He has a good deal of cough, attended with expectoration. Some degree of pain is felt in the shoulders and knees, but it is less severe than formerly. About five ounces of the mixture of whisky and morphia remain: the rest he has taken without vomiting any of it.

R. *acetatis plumbi gr. xxiv; pulveris scillæ gr. xij; mucilaginis q. s. ut ft. massa in pilulas xij dividenda. Sumat unam secundâ quâque horâ.*

Applicetur cataplasma sinapis pectori statim, et repetatur post horas sex.

Habeat pediluvium horâ somni.

Omittatur mistura spiritûs "whisky" et morphiæ.

15*th November* (*thirtieth day.*)—The prescriptions of the 10th had the desired effect. He has been gaining strength daily. Yesterday and to-day he has been able to sit by the fireside for a short time. Since the whisky was discontinued, he has had neither stimulant nor cordial.

Habeat cerevisiæ (*porter*) ℥*xx quotidie.*

21*st November* (*thirty-sixth day.*)—He is dismissed cured.

CASE XVII.—SUMMARY.—*Yellowness on the 6th day, and dark purple spots on the 7th—Remission—Relapse on the 14th day, with recurrence of the yellowness. Treatment: calomel and opium, aperients, &c.*

William Dodds, a native of, and constantly resident in Edinburgh, living at present in the Pleasance, single, aged 20, a carpenter, of spare habit, with dark hair and eyes, was

Admitted on 9th October (*sixth day.*)—He was seized on the 4th with rigors, headache, and pains in the back and limbs. Since then the symptoms have increased, with the addition of sleeplessness, and to day yellowness of the skin has appeared.

The pulse is 96, of good strength. The tongue is white, and moist. The bowels are open. He has much thirst. The headache is severe. The intellect is clear. There is a sweetish, saline taste in the mouth. He feels much weakness. There is moderate cutaneous yellowness, excepting of the extremities: the yellow tinge of the face and neck is very marked.

Abradatur capillitium; et applicetur assiduè aqua frigida toti capiti.

10*th October* (*seventh day.*)—He is much as yesterday. A profusion of dark purple spots has appeared all over the body.

Habeat pilulam calomelanos et opii vespere, et alteram cras mane.

11*th October* (*eighth day.*)—There has been little if any change since yesterday. From negligence on the part of the nurse he has not had the pills which were ordered. The bowels are confined. The urine is of a very dark-red hue. A blue pill has been just now administered; and another is ordered to be given in the evening.

Habeat statim enema domesticum.

12*th October* (*ninth day.*)—He took the medicines which were prescribed. He slept well, and feels much better. The pulse and skin are natural. The tongue is cleaning. The muscular and articular pains are pretty severe. The yellowness has almost disappeared from the face and general surface, but is still very well marked on the sclerotics. The appetite is returning.

Habeat victum oryzæ.

Habeat haustum cum solutionis muriatis morphiæ gtt. xl horâ somni.

13*th October* (*tenth day.*)—The tongue is moist, and nearly clean. The yellowness is now extremely faint, but is still distinctly visible. He feels much better, and complains only of general pains.

Quiescat.

17*th October* (*fourteenth day.*)—For the last two days he has had rice diet. He went on well till this forenoon, when he was seized with the relapse, which is marked by symptoms similar to those of the invasion. There is at present no yellowness.

Applicetur aqua frigida toti capiti.

Habeat victum tenue.

19*th October* (*sixteenth day.*)—The yellowness has returned in some degree. He has frontal headache, intense general pains, and sleeplessness. The face is bronzed over the malar bones; elsewhere, it is very yellow. Two blue pills have been given just now.

20*th October* (*seventeenth day.*)—He has had no stool since the blue pills were given yesterday. He had no sleep last night although he took a morphiated draught. The yellowness has become much more intense.

Habeat olei ricini ℥iss *statim: et injiciatur enema domesticum h. s., si opus sit.*

R. solutionis muriatis morphiæ gtt. xxv; tincturæ hyoscyami ℥ss. *Misce et ft. haustus h. s. s.*

21*st October* (*eighteenth day.*)—As the oil operated, the enema was not administered. He slept badly last night. There is some abdominal uneasiness. The tongue is loaded with a yellow fur. On the face, the bronzing is beginning to predominate over the yellowness, which is fading on the whole surface.

Habeat pilulam calomelanos et opii tertiâ quâque horâ.

22*d October* (*nineteenth day.*)—The bronzing is much more distinct than yesterday. There is only a slight trace of yellowness around the mouth. On awaking during the night and feeling thirsty, he drank a large quantity of cold water; after which violent rigors came on, but the coldness soon left him, and was replaced by burning heat, although the trembling continued. While in this state, bottles of hot water were applied to his feet, and round his body; likewise, some port wine negus was given him. In about half an hour from the invasion of the rigors, a profuse

perspiration broke out, which lasted two hours. He has taken three of the calomel and opium pills ordered yesterday. The tongue is less loaded. The pulse is 78, full, but rather compressible. There is no abdominal uneasiness. The muscular and articular pains have almost left him. He looks and feels much better. The bowels have not been opened since the 20th when he had the castor oil.

Habeat enema purgans statim.

26*th October* (*twenty-third day.*)—He complains of pains in the shoulders, arms, and legs; but is decidedly improving.

Habeat victum plenum cras.

27*th October* (*twenty-fourth day.*)—He rose this morning; but owing to the severity of the general pains on motion he was not able to dress, and had to return to bed almost immediately. His appetite is good.

2*d November* (*thirtieth day.*)—Since last report, he has been troubled more or less with diarrhœa, which has, within the last two days, been very severe, and has resisted the remedies prescribed—viz. decoction of logwood in one-ounce doses every three hours, the electuary of catechu combined with chalk mixture, and a starch enema containing forty drops of laudanum.

At present the purging remains unabated.

R. opii gr. iij; micæ panis, et confectionis rosæ q. s. ut fiat massa in pululas xij dividenda. Sumat unam post sedes singulas liquidas.

Habeat suppositorium c. opii gr. iij horâ somni.

3*d November* 1 P.M. (*thirty-first day.*)—He had no stools till midnight, between which time and the present he has had eight, which is a diminution in their frequency as compared with yesterday. From negligence of the nurse, five only of the opium pills have been given him.

Habeat pilulam omni horâ.

4*th November* (*thirty-second day.*)—The pulse is 72, and rather feeble. His bowels have been opened five times since last report: the stools are feculent, partially formed, and streaked with blood, and mucus. He complains of general abdominal uneasiness on pressure, particularly when a part, about the size of a crown-piece in the mesial line, nearly midway between the umbilicus and pubes, is touched. There is no fulness in either hypochondriac region.

Injiciatur enema amyli cum tincturæ opii ʒiss *statim.*

Habeat pilulam plumbi cum opio quârta quâque horâ.

11*th November* (*thirty-ninth day.*)—He went yesterday from the Fever Hospital to my Ward No. 4, Royal Infirmary, that he might continue a few days longer under observation. The diarrhœa has almost ceased. He is very anxious to leave the hospital. A dark stripe extending between the umbilicus and pubes has appeared since yesterday.

Habeat victum plenum.

13*th November* (*forty-first day.*)—He is dismissed tolerably strong, and free from complaint. The dark stripe remains.

CASE XVIII.—SUMMARY.—*Purpura, yellowness, hare-soup vomit, and hæmorrhage from the lungs in the first attack—Relapse on the* 13*th day, the remission between it and the first attack being imperfectly marked—Recovery. Treatment: calomel and opium, wine.*

Alison Wilkie, aged 46, the mother of ten children, of

ordinary development, with dark hair, and hazel eyes; a native of Edinburgh, where she has been all her life, at present residing in the Horse Wynd, was

Admitted on 30th September (sixth day.)—She was seized on the 25th September with languor, rigors, severe headache, and acute general pains; but has had no sweating since the invasion of the fever. The epidemic fever has been in the family. At present, the pulse is 118, and small. The tongue is dry, and dark coloured. She has great thirst. There is distinct, but not very vivid yellowness of the conjunctivæ, face, neck, chest, and abdomen. The headache is not severe. The bowels are open.

Abradatur capillitium, et postea applicetur aqua frigida toti capiti.

1st October (seventh day.)—The report of yesterday was made with an imperfect light in the ward, and on that account, the state of the skin could not be examined with sufficient care. To-day the yellowness is very decided on the conjunctivæ, face, chest, arms, and abdomen: on the legs, it is somewhat less intense. Upon the abdomen, and arms, the yellowness has a purplish tinge, and there are small purple spots scattered about irregularly in these situations—to which spots the neighbours attracted the notice of the patient three days ago. She does not seem to be worse than yesterday, but there is no amendment. The bowels have not been opened since admission.

Habeat enema purgans statim.

Sumat pilulam hydrargyri horâ somni; et alteram cras mane.

Habeat vini rubri ℥vj formâ "negus."

2d October (eighth day.)—She passed a restless night. Yesterday afternoon she vomited a good deal of black-

coloured matter which the nurse describes as resembling hare soup; but unfortunately it has not been preserved. There has been slight hæmorrhage from the gums, which she never had before. The pulse is 100, and somewhat deficient in strength. The bowels were opened by the enema. She had the blue pills as ordered.

Sumat pilulam calomelanos et opii sextâ quâque horâ ad quartam vicem.

Continuetur vinum.

3*d October* (*ninth day.*)—There has been no more vomiting, nor hæmorrhage from the gums. She passed a comfortable night and had some sleep. The yellowness has faded considerably. The countenance is improved. The tongue is parched, and in its centre there is a brown stripe. The pulse is 116, soft, and deficient in strength. The skin is cool and natural. She has had several dark stools. The urine is scanty and porter-coloured. She has some cough. There is no sweating. The pills and wine were administered as prescribed.

Continuetur vinum.

Habeat trochiscos morphiæ et ipecacuanhæ xx. Sumat j vel ij urgente tussi.

4*th October* (*tenth day.*)—The purple spots cannot be seen. The yellowness is disappearing rapidly. In every respect she is improving.

Continuetur vinum.

5*th October* (*eleventh day.*)—The improvement certainly continues, though the patient does not think so. She spits up a quantity of very tenacious mucus, occasionally containing black carbonaceous-looking masses of the size of a large pea, which gives a sooty streaking to the sputa. The urine is much more abundant, and has now a straw-colour.

Some scalding pain attends micturition. The tongue is clean, and moist. The pulse is 90, small and thready.

Habeat cerevisiæ (*porter*) ℥xx *vice vini.*

6*th October* (*twelfth day.*)—The expectoration continues as yesterday. There is some pain in the chest. There is a continual tendency to sleep. The pulse is rather firmer.

Applicetur emplastrum cantharidis (3+3) *sterno per horas tres, et postea applicetur cataplasma.*

7*th October* (*thirteenth day.*)—The blister rose well. The expectoration has greatly diminished in quantity, and is of a lighter colour. The pulse is 96, and deficient in strength.

Habeat jus bovinum frigidum pro potu.

Vespere.—She had a severe fit of rigors at 3 P.M.

12*th October* (*eighteenth day.*)—Since last report (excepting on the 8th), there has been a very slow but steady convalescence. The bowels have been regulated by castor oil. The debility is still extreme. General soreness with articular and muscular pains cause her great agony at times, and almost prevent motion.

2*d November* (*thirty-ninth day.*)—The wine was discontinued some days ago. She has made a complete recovery. She is dismissed, feeling quite strong and free from all pain.

CASE XIX.—SUMMARY.—*Bronzing of the countenance before seizure—Short remission and delirium on the* 3*d day—Yellowness of conjunctivæ on* 3*d day, and of general surface on* 5*th—Spots on* 6*th day—Severe headache, vomiting, and sweating—Slight rigors on the* 15*th day; but no relapse.—*

Recovery. Treatment : calomel and opium, morphia, stimulants, quinine.

Dr. Heude, born in India of English parents, resident in Edinburgh during the last three years, single, aged 23, of nervous temperament, spare muscular frame, with dark hair and eyes,

Took ill on 21st September.—During the last six weeks, he has been my resident clinical assistant in the New Fever Hospital. His previous health was good. His habits have been studious.

He was seized with severe headache, nausea, pain in the back, a feeling of chilliness, languor, anorexia, and much thirst about the close of the noon visit. He slept well last night, and previously. Yesterday, he showed no symptom of the fever, except bronzing.

His pulse is 120, full, and soft. The tongue is moist, clean in front, but coated with a brown fur behind. The bowels are confined. The temperature is increased. The skin is dry. There is no eruption. There is very severe headache. The intellect is clear. There is a bad taste in the mouth. He is greatly depressed in strength. The expression is anxious, and the face is much bronzed. There is some cough.

Abradatur capillitium; et applicentur hirudines viij temporibus.[1]

Applicetur aqua frigida toti capiti.

Habeat pilulam colocynthidis compositam.

Injiciatur enema purgans si opus sit.

22*d September* (*second day.*)—The symptoms continue,

[1] The leeches were applied at Dr. Heude's earnest request, and with Dr. Alison's sanction.

with vomiting, and increased headache. This morning about six o'clock he had profuse sweating. The head was shaved. The leeches bled freely for a long time. The bowels have been opened by the medicine ordered yesterday.

23*d September* (*third day.*)—Eight leeches have been twice applied to the head since last report. The symptoms are much the same as yesterday. The nurse states that there was a remission early in the morning. He did not sleep during the night. The conjunctivæ are congested, and have a slightly yellow tinge. He has had a good deal of vomiting. The headache is as severe as formerly. He has been very incoherent to-day. There was a fit of perspiration at 7 A.M.

24*th September* (*fourth day.*)—He had some sleep after taking, about midnight, a draught containing twenty-five drops of the solution of the muriate of morphia. He is more restless and incoherent to-day. He sweated at eight o'clock this morning.

25*th September* (*fifth day.*)—He passed a restless night, but had some sleep towards morning, after having an injection containing half a drachm of the solution of morphia. He sweated profusely at 4 A.M.; but, as on former occasions, has been in no way relieved by it. The whole surface of the body has a dusky yellow colour, but there is less of this tint on the arms and legs than elsewhere. There is very slight increase of dulness over the liver, and none over the spleen: in neither region is there any tenderness. It is difficult to describe the colour of the countenance. Over the malar bones, a deep purple hue preponderates over the yellowness, which is general elsewhere. He has no abdominal uneasiness. He has severe general pains and headache.

Habeat pilulas calomelanos et opii duas.

26*th September* (*sixth day.*)—The symptoms are aggravated to-day, except the yellowness which remains as yesterday. Early this morning, the nurse observed some spots on the chest. About 11 AM., (when now examined,) they are irregular, of nearly the size of a split-pea, and of a pale lake colour. They do not disappear on pressure. He had an enema last night, containing a full dose of the solution of the muriate of morphia.

27*th September* (*seventh day.*)—The pulse is feebler to-day, and variable. The incoherence, headache, and general pains continue. The spots, which became deepened in colour last night, are now purple. The urine is frothy, and as dark as porter. He has had three calomel and opium pills since yesterday, and one assafœtida and aloes pill, which opened the bowels. He has had a small quantity of wine.

28*th September* (*eighth day.*) *Noon.*—He was very violent during the night, and required to be kept in bed by force. When seen at 3 A.M., his pulse was 130; at 5 o'clock, it had fallen to 100: it is at present 102, and very feeble. Though somewhat incoherent and desponding, he lies quiet. He has passed two tarry stools. The urine is still porter-coloured. The yellowness is slighter. The petechial eruption is very marked. During the last hour he has had about three ounces of wine, which has somewhat improved his pulse.

2 P.M.—The pulse is 90, and firmer. He has had about four ounces of wine since noon.

6 P.M.—Pulse 80. His countenance is improved.

11 P.M.—Pulse 82. He is quiet, but has no tendency to sleep.

Habeat pilulam calomelanos et opii.

29*th September* (*ninth day.*)—He passed a tolerable night; and is to-day a good deal better. He has had two stools of a tarry consistence and colour. The urine is rather paler.

5*th October* (*fifteenth day.*) *Vespere.*—Since last report, he has been steadily but slowly improving under the liberal use of stimulants. Yesterday he was ordered an eight-ounce quinine mixture, containing twenty grains of the sulphate, of which he has taken three-fourths. This afternoon he had a feeling of chilliness, after which a profuse sweat broke out—the first since the morning of the 25th September—and he is still perspiring. Since yesterday he has had no general pains or headache. His appetite is good. His strength is increasing. The countenance is now almost natural. The alvine and urinary secretions are nearly normal in all respects.

26*th November.*—Since last report, he has had no symptoms of the fever. He has to-day resumed his hospital duties. The convalescence has been steady, under the liberal use of wine and ale. The quinine mixture was continued for eight days.

CASE XX.—SUMMARY.—*Bronzing before seizure—Rosy lenticular spots on the* 6*th day—Yellowness on the* 8*th day—Pustular eruption on the* 14*th day—Salivation during the intermission, from mercury taken during the first attack—Relapse on the* 19*th day.—Treatment: opium, calomel and opium, quinine, hydriodate of potash, wine.—Recovery.*

Mary Wallace, Scotch, a widow, aged 36, a day-nurse in the female wards of the New Fever Hospital, of spare habit, with brown hair, and light eyes,

Became a patient on 1st October.—During the last week, she has been in almost constant attendance in the apartment of Dr. Heude, who is now passing through the prevailing fever. Since an attack of rigors four days ago, she has been complaining of languor and debility, pain in the back, headache, thirst, bad taste in the mouth, and occasional nausea. Her tongue has been foul. The bowels have been pretty regular. Her face, during a longer period, has been bronzed—even before she felt unwell:—latterly, it became almost purple.

The pulse is above 100, of tolerable strength. The tongue is moist, clean in front, and coated with a thin brown fur behind. There is intense thirst. The bowels are rather confined. The skin is hot, and dry. There is no eruption. The headache is very severe. The intellect is clear. She has a bad taste in the mouth. The muscular power is greatly depressed. The expression of the face denotes much suffering. There is bronzing of the countenance, and on the upper part of the cheeks a purple hue is perceived.

R. pulveris scammonii gr. viij; calomelanos gr. iij. Misce. Fiat pulvis statim sumendus.

Applicetur aqua frigida toti capiti.

2*d October* (*fifth day.*)—The pulse is 104, rather deficient in strength. The tongue is moist, and only slightly coated with a white fur. The bowels have been freely opened. There is intense headache; and much thirst. The countenance is more depressed. The face is less purple, and more bronzed.

Abradatur capillitium, et applicetur lotio muriatis ammoniæ capiti.

Habeat haustum cum tincturæ hyoscyami ʒi horâ somni.

3d October (*sixth day*) *half-past* 1 P.M.—She has suffered much from restlessness, sleeplessness, and headache, since yesterday. The pulse is 108, and of the same strength as yesterday—certainly not weaker. The tongue is slightly white, and moist. The bowels are confined. She has a good deal of pain in the back. There is much nausea, and vomiting of a green fluid with an inky sediment. The countenance denotes suffering but not depression. On the chest are about ten rosy spots which disappear on pressure, but return vividly when it is removed. She has taken half an ounce of the creasote mixture.

Habeat pilulam hydrargyri statim, et alteram cras mane.

Sumat misturæ creasoti unciam quartâ quâque horâ si opus sit.

Applicetur cataplasma sinapis epigastrio; et linimentum saponis cum opio abdomini et regioni lumborum.

Vespere.—Since the former report was made (between 1 and 2 P.M.) there has been a good deal of delirium, with restlessness, and a desire to rise from bed, which she has done frequently. She has intense headache, general pains, and some abdominal uneasiness. The eruption is spreading over the arms, but not on the abdomen or legs.

Habeat haustum cum solutionis muriatis morphiæ ʒiss horâ somni.

Injiciatur enema purgans cras mane.

4th October (*seventh day.*)—The creasote mixture did not relieve the vomiting; but she took only two doses. She had some sleep after the draught, with occasional fits of perspiration and chilliness during the night, and is now lying quiet and collected—decidedly better. There is slight drowsiness, the effect probably of the large dose of morphia. The pulse is 78, rather deficient in strength. The skin is cool and

natural. The bowels have been very freely opened by the pills and enema. The tongue is parched, but clean, excepting in the centre, where it is a little brown. There is much thirst.

Quiescat.

5*th October* (*eighth day.*)—Towards midnight she became restless, and afterwards had a good deal of delirium, with desire to rise from bed, especially on awaking from short, disturbed slumbers. There is a slight yellow tinge on the skin of the face and neck; but on the former, the bronzing predominates. The vomiting is much less urgent. The bowels are not freely open, but there is a constant desire to evacuate them. The tongue is furred and dry. The general pains, which are still severe, have been somewhat relieved by friction with the soap and opium liniment. The urine is scanty, and of a dark colour approximating to that of porter. The patient is extremely restless; and her countenance indicates suffering.

Habeat pilulam calomelanos et opii tertiâ quâque horâ.

Injiciatur enema purgans cras mane.

6*th October* (*ninth day.*)—She has taken six calomel and opium pills. She has had a good deal of disturbed sleep during the night. Her countenance is much improved. The pulse is 86, of good strength. The tongue is clean, but parched. The eruption is fading, but is still visible. The yellowness is fainter than yesterday.

Habeat olei ricini ℥*iss statim.*

Habeat acidi sulphurici diluti gtt. xv ex aquæ fontis ℥*j ter in die pro potû.*

7*th October* (*tenth day.*)—She had no sleep last night. The pulse is 76, and of moderate strength. The tongue is clean and moist. She has passed several very fœtid, dark,

melæna-looking stools. The yellowness has entirely left her. The eruption is still visible, and has in no degree faded since yesterday. The face is much bronzed.

R. calomelanos gr. iij; pulveris rhei gr. viij; pulv. zingiberis gr. ij. Misce. Fiat pulvis vespere sumendus.

Habeat haustum, cum solutionis muriatis morphiæ gtt. xxxv, horâ somni.

8*th October* (*eleventh day.*)—She had a disturbed night, having been much troubled with diarrhœa.

Injiciatur statim enema amyli cum solutionis muriatis morphiæ gtt. xl.

R. opii gr. ij; confectionis rosæ q. s. ut fiant pilulæ tres. Habeat unam quartâ quâque horâ.

Habeat vini rubri ℥iv.

9*th October* (*twelfth day.*)—The bowels have been twice opened, without much pain. She passed a pretty good night. The pulse is 96, of moderate strength. The tongue is clean.

Habeat haustum cum solutionis muriatis morphiæ gtt. xl horâ somni.

11*th October* (*fourteenth day.*)—She has been improving since last report. Yesterday, a pustular eruption appeared on the chin and angles of the mouth.

Habeat victum plenum.

12*th October* (*fifteenth day.*)—She continues to improve.

R. sulphatis quiniæ ℈*j; acidi sulphurici diluti* ℈*j; infusi gentianæ* ℥iv. *Misce. Sumat* ℥ss *sextâ quâque horâ.*

14*th October* (*seventeenth day.*)—She cannot take the quinine. She has soreness of the gums, with looseness of the teeth.

Omittatur mistura quiniæ.

Utatur melle boracis.

R. *hydriodatis potassæ ʒij; aquæ fontis ℥iv. Solve. Sumat ʒj quater in die.*

16*th October* (*nineteenth day.*)—She continued to improve, till this morning, when she was suddenly attacked by headache, general pains, and vomiting. Yesterday, she was going about the wards, using too much freedom with herself.

Habeat victum tenue.

R. *pulveris opii gr. ij; confectionis rosæ q. s. ut fiant pilulæ iv. Sumat unam quartâ quâque horâ.*

18*th October* (*twenty-first day.*)—She is suffering much from vomiting, headache, and general pains. The pulse is very frequent.

Repetantur pilulæ opii ut antea.

Injiciatur enema amyli cum solutionis muriatis morphiæ ʒss.

19*th October* (*twenty-second day.*)—She is in all respects much better.

26*th October* (*twenty-ninth day.*)—Slight pains in the arms and shoulders continue. She feels quite well, but weak. She is allowed to walk out for an hour.

4*th November* (*thirty-eighth day.*)—Though still weak, she is quite well. This day she resumed her duties in the wards.

24*th November* (*fifty-eighth day.*)—She is now in excellent health, and has been gaining strength progressively since last report.

CASE XXI.—SUMMARY.—*Slight yellowness on the* 10*th day—Remission—Relapse on the* 16*th; recurrence of the yellowness on the* 24*th, and abortion on the* 25*th day—a second Relapse on the* 50*th day.—Recovery. Treatment: castor oil, henbane, opium, &c.*

Mrs. Cox, Irish, aged 27, from the Cowgate, moderately stout, with dark hair, and light eyes, was

Admitted, 29*th September* (*seventh day.*)—She is in about the 5th month of pregnancy, according to her own account. For some time past, she has not enjoyed good health. She states that her husband, who is a labourer, has been out of work for the last ten months, and that in consequence the family has had insufficient aliment. There were several cases of fever in the common stair where she lived before she was taken ill.

On the 23rd, she was seized with rigors, headache, pain in the back and limbs, anorexia, thirst, and weakness; and these symptoms continued, more or less, till her admission to the hospital. She felt rather better this morning than she has felt since her seizure.

The pulse is 140, soft, and weak. The tongue is brown, but moist. There is a good deal of thirst. The bowels are open by medicine. There are flea-bites, with circles of ecchymosis around them, thinly scattered over the chest and abdomen. She has slept very little since admission. There is severe headache. The intellect is clear. The expression of the countenance indicates suffering. There is a bad taste in the mouth. She feels very weak. She has some cough. Slight uneasiness is felt in the abdomen.

Abradatur capillitium, et applicetur aqua frigida toti capiti.

30*th September* (*eighth day.*)—She slept very badly during the night, and the headache is not relieved. The head has not been shaved as ordered; and the cold water has not been diligently used. The pulse is 118, very feeble. The tongue is moist, and nearly clean. The bowels have not been opened since admission. There is a good deal of pain in the lower part of the abdomen. The movements of the

fœtus have been very feeble since her illness; and she has not perceived them at all to-day. The dark abdominal line is broad, but rather indistinct.

Abradatur capillitium, et applicetur aqua frigida capiti.

Capiat olei ricini ℥j statim.

Habeat haustum cum solutionis muriatis morphiæ gtt. xxv horâ somni.

R. tincturæ hyoscyami ℥ss. Sumat gtt. xxv cras mane; et repetatur dosis si dolor persistat.

2*d October* (*tenth day.*)—She has taken the henbane three times. She feels much better. There is a slight yellow tinge on the face, neck, chest, and abdomen, but it is not perceptible on the legs. The bowels are open.

Quiescat.

3*d October* (*eleventh day.*)—There is some drowsiness, apparently caused by the henbane, which she has taken regularly. She looks much better. She complains of pains in the joints, with stiffness and soreness in the limbs on motion. The pulse is 80, of moderate strength. There is no trace of yellowness apparent, except a scarcely perceptible tinge on the neck and face.

R. hydriodatis potassæ ℥ij; infusi gentianæ ℥iv. Sumat ℥j sextâ quâque horâ.

4*th October* (*twelfth day.*)—The general pains are much alleviated; and she feels in every respect more easy. She has taken two doses of the mixture prescribed yesterday.

Pergat.

5*th October* (*thirteenth day.*)—She is entirely free from the general pains. There is a great improvement in her appearance. The pulse, tongue, and skin are natural. The bowels are confined. She has taken five doses of the mixture of hydriodate of potash.

R. olei ricini ℥j; aquæ menthæ ℥ij; solutionis muriatis morphiæ gtt. xv. Fiat mistura, horâ somni sumenda.

8*th October* (*sixteenth day.*)—Since last report, she has been going on improving.

Quiescat.

9*th October* (*seventeenth day.*)—Last night, she was seized with headache, and subsequently, perspiration broke out. At present the pulse is 100, and soft. She makes no complaint.

Quiescat.

11*th October* (*nineteenth day.*)—She feels ill, and complains of pain in the abdomen, back, and thighs. The pulse is 98, soft, and of good strength.

Sumat haustum cum solutionis muriatis morphiæ gtt. xl horâ somni.

12*th October* (*twentieth day.*)—There has been little, if any change, since the visit yesterday.

Sumat tincturæ hyoscyami gtt. xv tertiâ quâque horâ.

13*th October* (*twenty-first day.*)—The improvement, since last report, is very decided. The pains have entirely left her. A very distinct dark stripe extends from the ensiform cartilage to the pubes. It is very much deeper than when last reported.

Omittatur tinctura hyoscyami.

17*th October* (*twenty-fifth day.*)—On the 15th, she had bearing-down pains occurring regularly at intervals, which abated towards evening, after the administration of a draught, containing a drachm of the solution of the muriate of morphia. About half-past three o'clock this morning, the pains returned; and about four o'clock, a female fœtus, apparently between the fourth and fifth month, was expelled. The placenta was retained, and required to be removed by the hand

at 10 A.M., an operation which was accomplished with some difficulty, owing to the contraction of the uterus. At present, she feels easy. There has not been much hæmorrhage. The pulse is 68. Yesterday, the yellowness recurred in considerable intensity: it has rather faded to-day.

Sumat haustum c. solutionis muriatis morphiæ gtt. xl horâ somni.

18*th October* (*twenty-sixth day.*)—She is going on well. The yellowness has disappeared.

Quiescat.

17*th November* (*fifty-sixth day.*)—She is now convalescent from a third attack, which began on the 11th of this month.

23*d November* (*sixty-second day.*)—Dismissed cured.

CASE XXII.—SUMMARY.—*Yellowness on the 9th day—Relapse on the 19th day, in which there was severe diarrhœa (perhaps caused by colchicum) and no yellowness.*

Margaret M'Intosh, Scotch, married, aged 61, from Stevenlaw's Close, of stout development, with iron-grey hair and blue eyes, was

Admitted, 7th October (*seventh day.*)—On the 1st, she was seized with pain in the back and limbs, slight headache, and shivering. The headache increased on the 3d, and has continued very severe since that date. She attributes the present attack to exposure to contagion, as she has been in the habit of coming every evening to see her daughter at present a patient in this hospital.

The pulse is 116, of moderate strength. The tongue is brownish, moist, and chapped. The bowels have been

opened slightly to-day. She has had some sleep. The headache is severe. The intellect is clear. The muscular power is much depressed.

Habeat pilulam colocynthidis compositam.

8*th October (eighth day.)*—She slept pretty well during the night. Her bowels have been opened by the colocynth pill. The headache is still severe. The pulse and tongue are as yesterday.

Abradatur capillitium, et applicetur aqua frigida capiti.

9*th October (ninth day.*)—She has passed a bad night, owing to purging from a dose of castor oil given about 10 P.M. She feels very weak to-day. The pulse is 116, weak, and tremulous. The tongue is white, and rather dry. There is distinct yellowness of the face, chest, and conjunctivæ.

Habeat pilulam hydrargyri statim, horâ somni, cras mane, et cras meridie.

Habeat vini rubri ℥iv.

10*th October* (*tenth day.*)—The yellowness is the same as yesterday. The tongue is chapped, dry, and inky-looking.

Habeat pilulam hydrargyri horâ somni.

Continueter vinum.

Habeat jus bovinum frigidum pro potu.

11*th October* (*eleventh day.*)—She looks and feels better than yesterday. The bowels are confined.

Habeat olei ricini ℥j *statim.*

12*th October* (*twelfth day.)*—She feels much better than yesterday. The yellowness has in a great measure disappeared.

Quiescat.

13*th October* (*thirteenth day.*)—She feels much better, but complains of weakness.

Quiescat.

19*th October* (*nineteenth day.*)—To-day she has relapsed with considerable severity.

20*th October* (*twentieth day.*)—The skin is hot. The pulse is 100. The tongue is loaded with a white fur in the centre: it is clean and red at the edges. There is excruciating general pain, which is so severe as to prevent her from turning in bed.

R. vini colchici ℥ss; tincturæ opii ℥ij. Misce. Sumat guttas xv ter in die.

25*th October (twenty-fifth day.)*—The muscular and articular pains have left her. There is much diarrhœa, with tenderness of the abdomen and griping. The stools are liquid, and streaked with blood.

Injiciatur enema anodynum.

Habeat pilulam acetatis plumbi et opii tertiâ quâque horâ.

Intermittatur vinum colchici.

27*th October* (*twenty-seventh day.*)—The diarrhœa abated after six pills had been taken. She is now free from pain. Her condition is much improved.

Quiescat.

17*th November* (*forty-eighth day.*)—She is much better now, but is weak. She complains of trembling fits, which seize her when she rises from bed. She states that her life has been several times, before entering the hospital, in extreme jeopardy from fits of purging.

R. sulphatis quiniæ gr xxiv; extracti gentianæ compositi q. s. ut fiant pilulæ xij. Sumat unam bis in die.

26*th November* (*fifty-seventh day.*)—She is slowly regaining her strength. It is not yet considered safe to dismiss her from the hospital. Her only complaint now is weakness.

CASE XXIII.—SUMMARY.—*Yellowness in the first attack —Relapse on the 15th or 16th day, accompanied with erysipelas, livid patches, and delirium, followed by parotid abscess, and tedious Recovery—Treatment: stimulants, &c.*

Janet Baillie, aged 70, married, residing in Borthwick's Close, was

Admitted, 2d August, together with her husband. She was treated by Dr. Craigie, from the time of admission till I took charge of the hospital on the 10th, when she was found convalescent from a pretty severe attack, in which there had been jaundice. From the great pressure of cases, it was not attempted to take the history of all those under treatment; and unfortunately, Janet Baillie was not one of those selected for minute observation and reporting. The notes extant of her case are very scanty.

She relapsed on the 15th or 16th day of the disease. On the 2d day of the relapse, she had congestive delirium, involuntary passage of the stools and urine, erysipelas of the face and scalp, livid patches on the back and limbs, and subsequently the formation of an immense parotid abscess, which rendered the recovery very tedious. The quantity of wine, whisky, and other stimulants, which she consumed was much greater than that used by any other patient treated by me in the New Fever Hospital. Her recovery, it may be added, was quite unlooked for. The treatment consisted in cautious purging, the free use of stimulants, and topical applications for the erysipelas.

[Her husband had a severe attack, but of a different kind. He had no well-marked remission; and his case was very similar to the ordinary continued fever of Edinburgh, although no eruption was noticed.]

CASE XXIV.—SUMMARY.—*Admission on the 15th day, being the 1st of the Relapse—Yellowness, urgent hiccup, and vomiting.—Hare-soup vomit. Treatment: opium, creasote, and wine. Recovery.*

John Conway, aged 60, an Irish labourer, single, in Edinburgh only for one day, and just arrived from Dunbar, was

Admitted on the 9th October (fifteenth day.)—On the 25th September, he was seized with headache, shivering, and pains in the back. He seems to have passed through the first attack, and to be now entering on the second.

The pulse is 84, and of moderate strength. The tongue is clean. There is much thirst. The bowels are confined. He complains of sleeplessness, intense headache, and a bad taste in the mouth. He has severe hiccup, much muscular depression, and bronzing of the countenance.

10th October (sixteenth day.)—The hiccup is much moderated. The pulse and skin are natural.

12th October (eighteenth day.)—Severe hiccup and vomiting distress him.

13th October (nineteenth day.)—The hiccup and vomiting are very annoying. Sinapisms have been repeatedly applied.

15th October (twenty-first day.)—There is less hiccup. He is excessively depressed. Opium, and the creasote mixture have been the medicines employed to check the vomiting; but they have produced no benefit. He has taken eight doses, of one ounce each, of the creasote mixture, and several grains of opium in the form of pill.

Habeat vini rubri ℥vj.

R. opii gr. v; confectionis rosæ quantum suff. ut fiat

massa in pilulas x dividenda.—Sumat unam secundâ quâque horâ.

16*th October* (*twenty-second day.*)—Yesterday, when under the narcotic influence of the opium, the hiccup and vomiting were moderate. He slumbered much, but had no refreshing sleep. To-day he has vomited a good deal: the matter ejected seems to consist of unaltered ingesta. He has no vomiting except after eating or drinking: everything he swallows is immediately rejected.

18*th October* (*twenty-fourth day.*)—The hiccup seems to be gone. He is lying tranquil. He has taken all the pills. During last night he awoke from slumber and vomited, without pain or straining, a large quantity of fluid resembling hare soup in colour and consistence: it consists of a supernatant fluid, with a sediment of black particles exactly resembling coarse oatmeal except in colour. He seems better than he has been for some days. The nurse states, that this favourable change has only occurred within the last hour. A faint yellowness is perceptible upon the face, chest, abdomen, superior extremities, and thighs.

20*th October* (*twenty-sixth day.*)—There has been great improvement since last report. The countenance has exchanged its yellow for a leaden colour. He has taken one or two opium pills; and the nurse has instructions to administer them at short intervals should the vomiting recur.

10*th November* (*forty-seventh day.*)—After last report, the irritability of the stomach gradually subsided. He is now dismissed in perfect health.

The preceding reports comprise all the yellow cases treated by me in the New Fever Hospital, except a very few slight cases, which, not having been regularly reported, are only placed in the tabular views. From the tables it will be seen, that in many cases, epistaxis occurred, and in some profuse menstruation.

A number of interesting *yellow cases* have occurred in my hospital practice, since I was appointed Physician to the Royal Infirmary, and entered upon the charge of my wards in that institution. An account of some of the more severe of them is given in the Appendix.

CHAPTER III.

PATHOLOGY OF THE DISEASE.

THE present epidemic possesses positive and negative characters, strikingly distinguishing it from the fever which generally prevails in Edinburgh, viz.—

1. *The sudden and violent invasion of the disease.*

2. *Bronzing, leadening, or purpling of the countenance before and after seizure.*

3. *The almost uniform occurrence of one or more relapses.*

4. *The unusual number of cases with yellow skin, black vomit, and hæmorrhage.*

5. *The short duration of the pyrexial state and its mode of termination.*

6. *The severe muscular and articular pain.*

7. *The eruption resembling measles is absent in almost every case in the present epidemic.*

These are the principal characters which distinguish the two fevers, but they also exhibit other marked differences. For instance, in the fever which now prevails,

8. *Severe vomiting is much more common; as are likewise gastric, gastro-hepatic, gastro-splenic, and gastro-enteric symptoms.*

1. *The sudden and violent invasion of the disease.*

In respect of the invasion, the present epidemic resembles that which prevailed in Edinburgh in 1817-20.

Dr. Welsh says in his description of that fever:—"Frequently, the persons affected continue at their usual employment for some days, with languor, lassitude, aversion to motion, and loss of appetite: there are, besides, transient slight chills and flushings, after which they are attacked with decided rigors, pain of the back, and other symptoms of fever. More generally, however, *the attack is sudden*, the patient feeling previously no unusual sensation: sometimes, when at work, or getting out of bed to which they had gone in perfect health the preceding evening; or, in short, after any unusual operation, they find themselves attacked with severe rigors, headache, pain of the back, nausea, and sometimes vomiting or diarrhœa."[1]

The present fever comes on even more suddenly than that described by Dr. Welsh, which, however, as we learn from his narrative now quoted, seized the patients much more unexpectedly and far less insidiously than the true typhus, which of late years has been most familiar to us in Edinburgh; and a faithful account of which is given by Drs. W. Henderson and John Reid, in No. 141 of the Edinburgh Medical and Surgical Journal.[2]

---

[1] WELSH (Benjamin):—Efficacy of Bloodletting in the Epidemic Fever of Edinburgh. 8vo. Edinburgh, 1819. See p. 16.

[2] [This paper is reprinted in Dr. John Reid's "Physiological, Anatomical, and Pathological Researches," published at Edinburgh in 1858: it is entitled—"Report on the Epidemic Fever of Edinburgh: an Account of the Symptoms and Treatment by Dr. Henderson; and an Analysis and details of Dissections after death by Dr. Reid." The account is based on observations of about 200 of the cases of fever admitted to the Royal Infirmary between the end of October 1838 and the middle of June 1839. In the same volume there is another very valuable, reliable, and laborious paper on Continued Fever in Edinburgh by Dr. Reid. It is reprinted from the Edinburgh Monthly Journal of Medical

I have not found that my patients described the attack as following "any unusual operation." Many of them stated that they were taken ill when engaged in their ordinary routine of domestic or other occupations—lounging, eating, or sitting at the fireside.

From what I have seen and read of the manner of the invasion of typhus fever in various epidemics, I regard the sudden and violent invasion of the present fever as characteristically different from the way in which typhus sets in.

2. *Bronzing, leadening, and purpling of the countenance before and after seizure.*[1]

This feature, as has been already mentioned, is to the visitor of our fever wards one of the most remarkable peculiarities of the prevailing epidemic. Dr. Maclagan upon one occasion remarked to me, upon entering one of my wards, that the bronzed countenances all around strongly reminded him of the military hospital of which he had charge during the Walcheren epidemic. Others, again, familiar with the remittents and intermittents of Canada, the West Indies, and Italy, have assured me that the facial bronzing bore a strong resemblance to what they have seen in persons affected with them in these countries. The more marked cases of bronzing brought to my own recollection people whose aspect had arrested my attention in some of the marshy districts of Italy, particularly the inhabitants of the Pontine marshes and the unwholesome swamps around the ruined temples of Pæstum.

In respect to the appearance of the face, there exists an

Science for August 1842; and is entitled—"Observations upon the Statistics and Pathology of the Continued Fever of Edinburgh."]

[1] Vide Case XIX, p. 108; and Case XX, p. 112.

interesting point of resemblance between the yellow fever of hot countries and our present epidemic. The authors who have described yellow fever with most minuteness mention a peculiar change in the colour of the countenance before it assumes the yellow cast. Audouard, in describing the Barcelona epidemic of 1821, pictures to the very life the way in which I have seen the yellowness come on in our present fever—the dingy bronzing or leaden hue sliding as it were into the yellow.[1] On the 5th day, he says:—"La face est de couleur plombée tirant sur le jaune, et le tour des yeux légèrement ecchymosé: le globe de l'œil est plus jaune et moins rouge que la veille: le regard fixe et hébété, d'autres fois inquiet."[2] Blane, in describing the yellow fever, which he observed, evidently refers to something very similar to that which was noticed in my cases. "There is something," says he, "very peculiar in the countenances of those who are seized with this disease, discernible from the beginning by those who are accustomed to see it. This appearance consists in a yellow, or dingy flushing, or fulness of the face and neck, particularly about the parotid glands, where the yellow colour of the skin is commonly first perceived."[3]

3. *The almost uniform occurrence of one or more relapses.* Dr. Craigie, in a paper on the present fever which he

---

[1] This peculiar appearance is so characteristic, that of late I have predicted with unerring accuracy the appearance of the yellowness before a trace of it existed.

[2] AUDOUARD (M. F. M.)—De la Fièvre Jaune que a régné à Barcelone en 1821. P. 60. Paris, 1822.

[3] BLANE:—Diseases of Seamen. P. 419. 3d Edition. London: 1799.

has published in the Edinburgh Medical and Surgical Journal, says :—"The proportion of cases in which relapses or second attacks take place is very considerable, so great, indeed, that several observers believed, that they occurred in all the cases. I find, that from accurate accounts kept of 182 cases, relapses had taken place in 110, which is equivalent to $60\frac{4}{9}$ per cent. exactly." My experience differs widely from this statement of Dr. Craigie, and leads me to say most confidently that, unless anti-periodic remedies are employed, one or more relapses will occur with hardly a single exception ; and further, that it is only in a limited number of instances that these medicines act as preservatives from relapses.

A large number of the patients who have come under my care have been dismissed as cured from the wards of the Royal Infirmary and Fever Houses. Others, again, of my own patients have had second, third, and fourth relapses at home or in hospital, after leaving my wards. This generally happened in persons who had been dismissed at their own request, or were sent out in consequence of the urgent demands made for admission in behalf of severer cases. The same causes must of course have compelled Dr. Craigie to dismiss from his wards many persons, who, had they remained longer under observation, would have swelled his catalogue of relapses. Be that as it may, I have hardly seen a single case which has been under careful observation between the thirteenth and eighteenth day of the disease, which has not had a relapse during that period, a period of the disease within which a great number of dismissals were made by other physicians — and occasionally by myself though always with reluctance. The facts now stated explain satisfactorily the apparent discrepancy

between my statistics and those of Dr. Craigie bearing upon this point.

In reference to the same subject, Dr. Craigie further remarks :—"A third attack of febrile symptoms has been observed in a very small proportion of cases, I think not more than three in 346 cases, or less than one per cent. These third attacks were more frequent in Glasgow." Here again, my experience does not accord with that of Dr. Craigie. Third attacks I have found to be exceedingly common ; and fourth attacks not very uncommon. Several instances have occurred, to my knowledge, of patients having a fifth attack.[1] One person was admitted under my charge into ward No. 6, in the Royal Infirmary, who had gone through three attacks in hospital before becoming my patient, two of them under Dr. Craigie, and one of them under Dr. Henderson. The fact is, that it is quite impossible to give correctly the statistics of the relapses upon a large scale, so migratory are the patients between hospital physicians, dispensary doctors, and practising druggists. I have seen enough, however, to convince me that second attacks occur almost uniformly and that one or more subsequent relapses are far from uncommon.

Dr. Welsh, speaking of the relapses which were observed in the epidemic of 1817-20, says that they occurred in one-fifth of the whole cases ; but it also appears from his work, that in this statement, *the relapses only are included which took place when the patients were under his own obser-*

[1] A man named Bird, whom, on my appointment as physician to the Royal Infirmary, I left in the New Fever Hospital (under the care of Dr. Hughes Bennett my successor) recovering from a second relapse, died there the other day, exhausted after a fourth relapse—consequently a *fifth attack.*

vation in Queensberry House Hospital. But even according to Dr. Welsh's estimate, the frequency of relapses in the fever which he describes is sufficient to point out, in this particular, another feature of strong analogy between it and that now prevailing. The recurrence of the attacks, though occasional in typhus, is rare, and can most commonly be traced to errors in diet, or some other indiscretion. Independent of any accidental exciting cause, the relapses take place in the present fever. This is a distinctive peculiarity.

4. *An unusual number of cases exhibiting yellow skin, black vomit, and hæmorrhage.*

In the cases which I have reported, and also in those which I have treated since appointed to the Royal Infirmary, these symptoms occurred very frequently. Dr. Welsh tells us, that in the 1817-20 epidemic, "a yellowish or dusky state of the skin was not unfrequently observed, but did not appear to be distinctly referable to any particular state of the liver, or other viscus, farther than the diffusion of bile among the different fluids usually indicates; for that such diffusion had actually taken place, appeared to be verified in all the cases of yellow skin in which any trials were made. In all of these, the patients' urine distinctly tinged linen cloth, or similar substances, immersed in it." P. 21. In another part of the same work, Dr. Welsh says, that "decided yellowness of the skin and eyes occurred in twenty-four patients, or in one in $30\frac{2}{2}\frac{3}{4}$; and in all these cases, where the experiment was tried, the urine tinged linen. This symptom was observed in 4, or 1 in $8\frac{1}{2}$ of the fatal cases." It appears then, that the present epidemic resembles that of 1817-20, in the frequency of the yellow cases. I have been told by several friends who had experi-

ence of that epidemic, that the yellow cases occurring at present are of a much more severe character than those which were seen in 1817-20.

Yellowness and black vomit have, by most writers, been taken as characters of a special disease; and we find remittent and continued fevers, when prevailing epidemically, each described under the designation of yellow fever. A very cursory, if judiciously directed study of the literature of this disease, will convince any one, that the term "yellow fever" is applied to fevers differing essentially from one another in their character, constitution, and mode of propagation. Four years ago, I visited Barcelona, Gibraltar, Cadiz, and other towns of the Mediterranean coast, where the epidemic prevailed, described as yellow fever by Moreno, Louis, &c., and conversed with the physicians most conversant with the disease. I never heard from one of them, as I find on reperusing my notes, any diagnostic characters of the fever, excepting the yellow skin and black vomit; though, in a majority of the fever cases occurring at that time, these symptoms were not seen. In ordinary conversation, the term "yellow fever" may be allowed, but it ought to be banished from scientific nomenclature, inasmuch as *yellow skin*, *black vomit*, *black stools*, *dark urine*, *and hæmorrhages are consequences of congestion*, *liable to occur in fevers of all types and countries*. A few illustrations of this statement may be desired. They are therefore subjoined.

Dr. Christison, in his work on Continued Fever, contained in Tweedie's Library of Medicine, mentions "disorder of the hepatic system accompanied with jaundice," as "an important, though rare complication." He says, that "it occurs chiefly in the autumn months, and principally in those epidemics where the inflammatory type is prevalent.

Yet it is important, because cases where it occurs commonly prove fatal. The exact nature of the affection is not apparent. The symptoms are rapidly formed jaundice, sickness with frequent vomiting but without particular uneasiness in the region of the liver, extreme prostration of strength, much tendency to coma at an early period of the fever, speedy sinking of the pulse, and in general, bilious stools. The symptoms show themselves in the course of the first week. If they do not begin to abate in two or three days, death occurs in a few days more under a state of extreme exhaustion and deep coma. Should the yellowness of the skin, however, begin to diminish, the other secondary symptoms soon subside also, and the fever runs its usual course. Some have imagined this affection to be allied in nature to the yellow fever of hot countries, but with what justice it is not very easy to say."[1]

On the 7th of June, 1843, Mr. Henry D. S. Goodsir, of Anstruther, communicated to the Medico-Chirurgical Society of Edinburgh a paper, entitled "*Account of a Form of Continued Fever accompanied by Jaundice, which occurred in the Eastern District of Fife in* 1841-42*; with some Observations on the Gastro-Intestinal Character of the Endemic Fever of that District.*"

The prevailing type of the fever in Eastern Fife differs from that of Edinburgh in its symptoms and anatomical characters. The patients generally suffer from tympanitis and abdominal tenderness; and on dissection, there is found ulceration and occasionally perforation of the mucous membrane and glands of the intestinal tube. "Up to the year

---

[1] CHRISTISON (Robert):—Article, CONTINUED FEVER, in Tweedie's Library of Medicine. London: 1840. See p. 140.

1840, the symptoms and dissections indicated that the local complication was confined to the solitary and aggregated glands of the ileum and cœcum. In 1841 and 1842, the disease, although still exhibiting the same mode of origin and propagation as in the more ordinary forms of continued fever, was almost always accompanied by jaundice (occasionally very dark), urgent thirst, irritability of stomach, copious secretion of mucus in the throat and mouth, pain in the epigastric and right hypochondriac regions, obstinately confined bowels, with acute and continued headache. The pains which ushered in the disease were more distressing than usual, and were confined more to the joints, which generally became slightly swollen. After the skin had become yellow, the urine became deep, and the stools pale in colour, the skin itchy, with some decrease in the severity of the other symptoms. The pulse ranged from 100 to 150. There was generally, as in other forms of continued fever, more or less severe bronchitis."

A case of typhus came under my observation in one of Dr. Alison's fever wards, during the period of my service as his clinical assistant. The patient, on the seventh day of the fever, after a well-marked remission of the symptoms (which had been severe) was suddenly seized with jaundice and black vomit. About 5 P.M., he took some whiffs of tobacco smoke from the pipe of a convalescent patient.[1] Shortly after this, he fell asleep, and awoke with a fit of vomiting and pain in the abdomen. For twelve hours after this, he had incessant vomiting of black matters, and some epistaxis. At the end of this time he died unexpectedly in convulsions. Upon dissection, the bile-ducts

[1] The use of the pipe in the wards is contrary to rule.

were found to be pervious, and the liver healthy. The only other appearance which I have noted of the autopsy in this case, is, that the vena cava and right auricle were enormously distended with fluid and frothy blood, a circumstance which, at the time, particularly arrested my attention, as the dissection was made within thirty hours after death, during the intense cold of January 1838, with the thermometer below 20° Fahr. During the whole course of the case, the temperature was below the freezing-point.[1]

Cases which have been described by some writers as sporadic cases of yellow fever, were seen in Paris after the hot summer of 1822. We are informed by Andral that they were decidedly typhoid. In the autumn of that year, several cases of fever accompanied with yellow skin and black vomit, occurred in the Hôtel Dieu; and at the same time two patients were similarly affected in La Charité.[2]

Dr. Stokes, in the article *Enteritis* in the Cyclopædia of Practical Medicine, and Dr. Graves in his Clinical Medicine, describe some cases of yellow fever which they treated in the Meath Hospital of Dublin during the epidemic of 1827. The latter gentleman, in introducing the subject to his pupils, remarked, that "there is not so much difference between the diseases of Ireland and warmer countries as has been imagined. They differ, it is true, as to their degrees, but not as to their pathology."[3] Were this doctrine more

---

[1] This case is referred to in my second pamphlet on Air in the Veins, entitled, Remarks on a Case of Suicide, &c. Edinburgh, 1838. [This pamphlet is reprinted in this collection of "CLINICAL STUDIES."]

[2] ANDRAL (G.):—Article TYPHUS in Dictionnaire de Médecine.

[3] GRAVES (Robert James):—Clinical Medicine, 8vo. Dublin, 1843.

See p. 215.

generally appreciated, the accounts of the different fevers unfolded to us in the oral and written compilations of our preceptors and of those who are termed systematic writers, would perhaps present less picturesque and piquant, but certainly simpler and truer, pictures of disease.

In proceeding with the notice of the Dublin yellow fever, it may be first remarked that in fifteen cases Dr. Graves could detect no difference between the symptoms which they presented and those which characterise tropical yellow fevers. I quote the parallel which he draws, in his own words :—

"1*st*, In both, patients become yellow, from absorption of bile into the system; but observe, in epidemics of yellow fever, it never happens that all, or even most of the cases, turn yellow.

"2*d*, These yellow cases are here equally fatal.

"3*d*, Tenderness of the epigastrium and vomiting were present in both.

"4*th*, The strongest die.

"5*th*, Jaundice does not depend on hepatitis in either.

"6*th*, Nor on any permanent obstruction of the gall-ducts.

"7*th*, In both, the seat of the disease is a violent inflammation of the mucous membrane of the stomach and duodenum ; dark purple, soft, and semifluid.

"8*th*, Black vomit in true yellow fever consists of a sanguineous fluid mixed with the vitiated secretion of the stomach and blood : this forms the coffee grounds. This *black vomit* we found in one of our patient's stomachs."

The statement, that violent inflammation of the mucous membrane of the stomach and duodenum is in both the seat of the disease, is, we must remember, an opinion and not an acknowledged fact; but then, the observation that the

mucous membrane of this part of the intestinal canal was found dark purple, soft, and semifluid, is of high value, being the record of physical appearances actually seen, and not matter of theory but of history. In the yellow cases of the fever now prevailing in Edinburgh, this same altered state of the gastro-intestinal mucous membrane is found; but there is no lymph effused—nothing, in fact, indicative of inflammation unless in some severe cases which linger long; in such I have seen inflammation around effused clots of blood, which seemed to have acted in these cases just as any other foreign body might act. This observation is founded upon autopsies which I have seen in the Royal Infirmary, since the first part of this work was printed. In my own cases, also, the gall-ducts were found pervious, and indeed, in all respects, the resemblance was complete between the symptoms of my cases and those considered by Dr. Graves to be common to the yellow cases which occurred in Dublin in 1829, and to the yellow fevers of tropical climates. My cases differ in being remittent instead of continued, just because the epidemic at present prevailing here is of the former class, whereas that which ravaged Dublin when Dr. Graves' cases occurred was of the latter type.

Two of Dr. Graves' cases are subjoined, in order to afford the reader the means of understanding the exact nature of the group. The observations which he appends to each are also given.

"John Gaven, aged 22.—This man's case differed in no material circumstances from the preceding cases.—*Dissection, twenty hours after death.* Body extremely well made, strong, and muscular. Nothing morbid in head or thorax, except dilatation of some bronchial tubes. There were five intussusceptions in the small intestines, without any adhesions or

marks of recent inflammation[1] ; other parts of the intestines are considerably contracted ; the mucous membrane of the stomach, from the cardiac orifice, to within about two inches of the pylorus, is of a brownish-red colour. Here, the mucous membrane yields readily to the back of the knife, and may be scraped off in a semifluid state ; it contains several patches of ecchymosis. The whole of the intestinal tube, with the exception of the duodenum and the lower half of the larger intestines, has its mucous membrane of a dark red colour, with numerous ramifications of vessels engorged with blood. In many parts, the mucous membrane is very soft and almost semifluid. The liver is perfectly healthy and there is no obstruction in the gall-ducts.

"*Observations.*—As our limits will not permit us to detail more dissections of this truly curious and fatal form of fever, we shall merely sum up some of the principal points connected with its pathology. 1*st*, In none did we find inflammation of the liver or obstruction of the gall-ducts. 2*d*, In *all*, evident marks of inflammation (?) were found in the mucous membrane of the stomach, such as redness, softness, &c. 3*d*, In almost every instance, we found one or more intus-susceptions in the small intestines. 4*th*, All these were without any mark of inflammation of the serous membrane, and the invaginated portion of intestine could always easily be drawn out of the other. 5*th*, In *several*, we found effusion of a yellowish or amber-coloured fluid between the arachnoid and pia mater, at the base of the brain, and sometimes in the ventricles but in these only in small quantity.

[1] I never met with intus-susception so frequently mentioned by Dr. Graves in the details which he gives of his yellow cases. It is sometimes noticed in tropical yellow fever.

6*th*, In none, did we find inflammation of the brain or its membranes. 7*th*, We have found the spleen very much enlarged in almost all. When the spleen in acute cases is thus engorged and distended, it is invariably softer than natural. In but one case did we find a considerable quantity of a dark red fluid in the stomach, together with a good deal of a substance resembling coffee grounds, and in this case, the mucous coat of the stomach was in many places of a very red colour and a slimy consistence, so that there could be but little doubt concerning the origin of the contained fluid and the coffee-ground substance, which must have proceeded from the diseased and almost disorganised mucous membrane. Such have been the principal appearances observed during the dissection of about fifteen fatal cases of fever, combined with yellowness of the skin. The following cases will convey a more exact idea of the symptoms which characterise this form of fever than those already related, which proved too suddenly fatal to allow a full development of the symptoms.

"PETER KELLY, aged 28—on the 29th December was admitted into fever shed, No. 4, stating that for two days previously he had severe cough without expectoration. Pulse 110, strong; face flushed; tongue white, and moist; pain across forehead, and general distress; great tenderness of epigastrium, and right hypochondrium; costive; thirsty; abdomen hard: on examination, no morbid *râle* was perceptible; the respiratory murmur was natural.—30*th December*. *Venesectio ad* ℥xv.—*Hirudines xx epigastrio.*—*Pil. purg. et mist. purg.*—31*st December*. Cough very severe.—*Vesicatorium pectori.*—*Mist pectoralis.*—1*st January* 1827. During last night, he became jaundiced; considerable distress this morning; black stools; great tenderness of epigastrium and

right hypochondrium; cough very troublesome.—*Venesectio ad ℥xij.—Hirudines xxx, hypochondrio et epigastrio.—Abradantur capilli, et applicetur vesicatorium vertici.—Sumat omni horâ, calomelanos gr. ij.—2d January.* Much relieved; skin not nearly so yellow; tenderness greatly diminished; some sweat last night.—*Rep. pilulæ—3d January.* Considerably improved; skin nearly natural.—*4th January.* Mouth affected with mercury; skin natural,—*Omittantur medicamenta.—5th January.* Removed to convalescent ward. —*7th January.* Convalescence continues; has now no complaint, but of slight soreness of the mouth.

"*Observations.*—Here the yellow colour appeared about the fifth day, and there was sweat attended with much relief on the seventh day. The symptoms chiefly worthy of notice are the violence of the febrile reaction, pains of the forehead, great tenderness of the epigastrium and right hypochondrium; blackness of the stools, and hardness of the belly. We shall just now see the great importance of these symptoms in determining the true nature of the disease." Pp. 206-208.

In certain circumstances, traumatic fever assumes all the characters of yellow fever.

Larrey mentions that many of the wounded of the French army at Cairo and Alexandria, were cut off by a fever marked by jaundice and black vomit.

Professor Sir George Ballingall, in a published Clinical Lecture,[1] delivered at Edinburgh in 1828, describes and illustrates this variety of traumatic fever, in a most interesting and instructive manner. The passage to which I refer is valuable, as tending to establish a point which I am

[1] Ballingall (George):—Lecture. Quarto, Edinburgh, 1828.

anxious to make out, viz. that *yellow skin and black vomit are not specific but accidental characters of fever.*

In the passage referred to, Sir George remarks :—" One symptom, however, appeared early in this patient's case, which I did not fail to remark to my colleagues, and which, as far as my observation goes, is a circumstance almost uniformly foreboding a fatal termination. I allude to a peculiar yellow hue of the skin which not unfrequently attends the symptomatic fever supervening upon wounds and operations. This has perhaps struck me more forcibly, from being familiar with a similar appearance in the idiopathic fevers of tropical climates ; and although I have no wish to alarm the citizens of Edinburgh by talking of a yellow fever in this part of the world, yet I am bound to state, for your instruction, that I have occasionally seen it here as well marked as I ever saw it at Seringapatam or Batavia, and, when supervening upon injuries, much more uniformly fatal.

" A case of this kind occurred some years ago which made a deep impression on my mind, and which must have done so, I think, upon all those who had occasion to witness it. I allude to that of a seaman belonging to one of her Majesty's ships, in the [Leith] roads, whose limb had been amputated below the knee in consequence of an accident. The accommodation on board his ship being defective, and the vessel about to sail, he was brought ashore to this hospital, and placed under my care ; here his stump sloughed, the symptomatic fever ran high, was attended with that dingy yellowness of the skin to which I allude, and in a few days he died. I observed to a surgeon of the ship who came ashore to see him dissected, that this case wanted nothing but the ' black vomit ' to constitute a complete example of

yellow fever. It was found on laying open the stomach that this circumstance, necessary to complete the parallel, was hardly wanting; for here was a collection of dark grumous fluid, resembling coffee grounds, which is so often evacuated from the stomach in tropical fevers."

Yellow fever has frequently broken out in ships in warm latitudes, as in our vessels in the Carribean Sea, and on the coast of Africa. When this calamity occurs in harbour, it may, and often no doubt has been owing to the miasmatic influences there prevailing; but when we see the disease suddenly breaking out in a ship far from land, and when there has been no communication during the voyage with any vessel or town where the fever was at the time, since leaving the Thames or any other healthy port, then we must look for some other cause than contagion or marsh miasmata. In such cases, it has generally been remarked that the ballast has been altered, or the hold rummaged for some particular purpose. This would obviously cause putrid miasmata to ascend through the ship. The stench and putrid odour on such occasions are often terrible; nor is this to be wondered at, when we reflect upon the corrupted water, dead rats, and decayed animal and vegetable matter of all kinds, which too often accumulate in the holds of vessels, and are allowed to rot there unmolested for years.

Forget states in his 'Médecine Navale' (tom. ii, p. 197) that two French war brigs, a schooner and a frigate, when cruising off the Antilles, changed their ballast, and that immediately all of these vessels lost men from yellow fever. The Bedford, an English 74-gun ship, arrived in Gibraltar Bay, in 1794, from the Mediterranean, with all hands on board in perfect health. In the course of one week, "after the shipping of the shingle ballast," 130 men

were in the hospital affected with yellow fever. The disease was not prevailing at the time in the garrison; and no one attributed the visitation to contagion. Very few naval surgeons are contagionists, a circumstance probably in a great measure to be attributed to their having had experience of such occurrences as those of which examples have now been given. Griffiths of Philadelphia, designates yellow fever the ship fever of tropical climates. Dr. Thomas Parke thinks that yellow fever may be produced by the morbific effluvia proceeding from the bilge water of vessels—because since 1793, he has always seen this disease commence at Philadelphia, near Delaware, and gradually extend to the west.

Hippocrates describes a fever which, from the symptoms mentioned, there is great reason to believe was identical in its nature with some of the epidemics of yellow fever of modern times. In various passages he speaks of the black vomit, which he regards as a mortal symptom; and in one place he mentions a remittent fever, which he considered bilious, as raging in the Isle of Thasus after a long continuance of hot weather. The patients were affected with nasal hæmorrhages and severe pains, and generally about the fifth day the skin became yellow.

In the 'Definitiones Medicæ,' ascribed to Galen, there is a species of fever mentioned, called ικτερωδης, in which the leading symptoms are said to be dry tongue, enlarged liver, and an exceedingly yellow skin. Some writers have supposed that the plague of Athens, described by Thucydides, and the *morbus niger* of the ancients, as well as various other pestilences of former times, were identical with what we call yellow fever.

The yellowness of the skin in yellow fever has been ascribed to general ecchymosis, and possibly, in some in-

stances, it may originate in this cause. Andral has shown that it is this which produces the saffron colour of the skin, in what is improperly called the jaundice of new-born children. I have noticed that in my cases the yellowness was always most intense when the blood had been drawn to the surface by blisters, sinapisms, or other means. However, if this explanation be ever adopted in regard to yellow fever, it can only apply to those cases in which the yellowness is partial or limited to particular parts of the body. Moreno, Gillkrest, and others have seen the sheets stained yellow with the perspiration ; and this result we could hardly expect, were it merely ecchymosis which discoloured the skin. Moreover (as in the present epidemic) the fluid in the cavities, and the urine, have often a yellow tinge ; and John Hunter states that the latter stains linen rags yellow like the urine of a person in the jaundice.[1] Fordyce attributes the yellow skin to a redundant secretion of sebaceous matter. Saunders believed that it depended rather "upon a particular state of the lymph in the cellular substance of the parts, than upon the absorption of bile into the circulating mass."[2] The most rational explanation seems to be, that it is the result either of an absorption of bile, or of its non-elimination from the blood. There may be instances in which the former is the cause ; but when we remember the disordered state of the secretions, and the diseased condition of the blood, it seems more natural to conclude that the bile has either not been secreted, or secreted in very small quantity.

---

[1] HUNTER (John) :—Observations on Diseases of the Army in Jamaica, p. 72.

[2] SAUNDERS (William) : — Structure and Diseases of the Liver. London, 1793. See p. 104.

The bite of a particular kind of viper possesses the remarkable property of causing the skin to become deep yellow, sometimes, within the space of an hour. To produce this effect, however, the poison must be in a concentrated form and actually introduced into the circulation. The primary effect, both of the poison of the yellow fever and of the bite of the viper, seems to be upon the blood; and in both instances there is a partial or complete suppression of the secretions.

As intimately connected with this subject, it may be mentioned that yellowness of the skin, yellow sweats and yellow urine, have ensued from eating certain kinds of poisonous fungi and fishes; and it may also be stated that there is a remarkable resemblance in the effects produced by the poison of animal and vegetable putrid matter, and the poisonous principles of certain fishes and fungi. Thomas states that from the effects of fish poison he has seen the whole body become yellow, and the urine and sweat assume the same hue, the latter giving a deep yellow tinge to linen. He observed these symptoms in several cases; and particularly in himself from eating the pirea marina, a poisonous rock fish. The resemblance between the *post-mortem* examinations in cases of poisoning from fungi, and in those of death from yellow fever, may be seen by consulting Christison on Poisons.

From a careful study of 200 cases of the present epidemic, and the casual observation of twice as many more, I have found that many patients had an interval of perfect health between the attacks, whereas others had only a remission—that a number of both of these classes of patients had jaundice, hæmorrhages, and vomiting of black matters—yet so obvious was the connecting link of cases between these groups, that

it never occurred to me, nor I suppose to any one else, to consider that these variations in some of the phenomena constituted two distinct fevers. Symptomatic distinctions are important in the regulation of the treatment: if adopted in speaking of the pathology of the disease, they must necessarily lead to partial and erroneous views. It is this arbitrary method of classification, and the dressed-up descriptions of systematic authors, which make it appear to the cursory student that the fevers of tropical climates are different from those of this and other temperate countries, whereas were epidemics of different climates studied as they actually occur, it would be found that fevers, so far as climate is concerned, "differ as to their degree, but not as to their pathology."

As an illustration of the breaking up of an epidemic into different fevers, for the purpose of making a neat return, I subjoin one of the tables from the Army Reports referring to Jamaica, which is much more subject to yellow fever and bilious remittent (which is arbitrarily separated from it)

	Admissions.	Deaths.	Proportion of Deaths to Admissions.
Intermittent Fever . . .	6·090	37	1 in 165
Remittent Fever . . .	38·393	5·114	1 in 8
Common continued Fever . .	1·971	86	1 in 23
Yellow Fever (Icterodes) . .	20	15	1 in 1½
Synochus	448	1	1 in 448
Total . . .	46·922	5·253	1 in 9
Annual Ratio per 1000 of mean strength	910	101·9	

than the islands included in what are termed the Windward and Leeward Commands.

The cases styled remittent fever might very often, with as much propriety, have been called yellow fever; and in the other classes, difficulties would occur as to the distribution.

The various hæmorrhages in our yellow cases are apparently as common as in the yellow fever of the Mediterranean and in various epidemics of the West Indies. Moreno, speaking of the Cadiz fever, remarks that profuse menstruation was a common critical flux, and that it often occurred at the crisis in women in whom the catamenia had ceased a few days before: he also states, that those who were seized with the fever when menstruating had a sudden stoppage of the discharge, with a recurrence of it to excess at the crisis.[1] Similar observations were also frequently made in my practice in the New Fever Hospital of Edinburgh.

5. *The short duration of the pyrexial state, and its mode of termination.*

The general occurrence of the crisis so early as the fifth day distinguishes this fever in a very marked manner from typhus. The termination in the former is also much more commonly indicated by sweating, or other critical evacuation.

In the fever of 1817-20, Dr. Welsh says that "most

---

[1] MORENO:—Ensayo Medico-Practico sobre el Tifus Icterodes, fiebre amarilla comunmente dicha, &c. Cadiz, 1813. "*La evacuacion mestrual en el bello sexó aparece en los mas de los casos, ... aun en aquellas mugeres en quienes habia cesado pocos dias ántes; y en las que eran invadidas en un tal estado, la evacuacion cesaba, volviendo á veces á presentarse pasados los momentos del espasmo periferico.*" P. 44.

frequently no evacuation marked the crisis ; but when any did make its appearance, it most generally took place by sweat, but, in a few instances, by diarrhœa, epistaxis, and great uterine hæmorrhage. Pustular eruptions, parotiditis, and carbuncle, were also occasional, though still rarer critical evolutions of the fever." These statements apply to the present epidemic, excepting the first, namely, that most commonly the crisis is not marked by a critical evacuation. In almost all, if not in all my cases, it was otherwise till within the last twenty days, when certainly several cases have occurred, in which the patients have slowly, and without notable crisis, passed into convalescence. All these cases, however, were of the continued type, and gave no symptoms of convalescence earlier than the thirteenth, and some of them not till the twenty-first day.

A copy of the 'Medical Gazette' for the 24th November has just been received, in which I find a very valuable paper, by Dr. Mackenzie, of Glasgow, on the fever now prevailing in that city, which is the same epidemic as our own fever. The following extract, which it contains, from Dr. O'Brien's description of the Dublin epidemic of 1826, may be here appropriately introduced, as it describes a relapsing fever very similar to that which forms the subject of this essay :—

" The other species of fever, or that of the new constitution, which constituted the bulk of this epidemic, was one of short periods, terminating in three, five, seven, or nine days, but the second of those periods was the most frequent." . . . . . " In this fever the chain of morbid actions was rapidly formed and rapidly terminated, and the disease developed itself with energy from the commencement. The access was sudden, and usually came on at mid-day. The person, previously in perfect health, would then be seized

with sickness at stomach, headache, pain in the small of the back, and chilliness. On the approach of evening all these symptoms increased, and the febrile paroxysm was fully formed; the chilliness increased to a rigor, and the nausea to vomiting, which harassed the patient for the first three or four days of his fever in the form of an empty straining, and frequently continued through its whole course. On the evening of the fifth or seventh days, the *exacerbatio critica* commenced, which, mostly with the intervention of a rigor, but very frequently without this symptom, terminated in a profuse perspiration, which continued through the night, so that on the following morning the crisis was complete, and we generally found the patient convalescent. We frequently received the glad tidings from himself in the following words: 'Sir, I got the *cool* last night.' The *cool*, however, was sufficiently visible in his countenance, before he opened his lips; but unfortunately, in many instances, it proved only a delusive truce to his sufferings. The patient was destined, perhaps, to be harassed by one, two, or three relapses, which prolonged the whole duration of his illness even beyond that of the most protracted typhus. In fact, the liability to frequent relapses was one of the most striking characteristics by which this fever was distinguished from all previous epidemics, at least which happened in our time."

"Relapses, generally speaking, were milder and shorter, than the original fever; but to this many exceptions occurred. The general symptoms of the summer variety of this fever, in addition to those already mentioned, were—acute headache; delirium, always active, sometimes phrenitic; rapid, and hard pulse; white tongue, with florid edges, but sometimes natural; muscular and arthritic, rather than deep-seated pains, or, as they are termed, 'pains of the bones,'

not accompanied, however, by swelling of the joints, except in a few instances; the skin in many cases of a light yellow tinge, and sometimes, though rarely, assuming the intense icteroid yellow characteristic of jaundice and true yellow fever."[1]

6. *Severe muscular and articular pains in the course of the disease and during convalescence.*

This feature is, in several points of view, a very interesting peculiarity of the present fever. The patients have acute rheumatic attacks, and occasionally acute pain in the feet, just like those affected with the epidemic of 1817-20—as we learn from Dr Welsh. He says:—"A very common symptom, occurring sometimes in the disease, but oftener during convalescence, was rheumatic pain of the joints, which occasioned considerable annoyance to the patient, and was removed with difficulty. Severe pain of the feet, with slight œdema, was likewise observed in a few cases in the stage of convalescence." P. 18.

---

[1] "In Rutty's History of the Diseases of Dublin during forty years, we meet with several instances of an epidemic, of the same character with that now under consideration. Thus in July, August, September, and October, 1739, a fever prevailed, which was 'attended with an intense pain in the head. It terminated,' says he, 'sometimes in four, for the most part in five or six days, sometimes in nine, and commonly in a critical sweat: it was far from being mortal. I was assured of seventy of the poorer sort at the same time in this fever, abandoned to the use of whey and God's good providence, who all recovered. The crisis, however, was very imperfect, for they were subject to relapses, even sometimes to the third time' (p. 75). He describes the same remittent fever as occurring also in 1740, 1745, 1764, and 1765; noticing as a circumstance of the disease in 1765, that the bowels were in some instances remarkably affected."—*Mackenzie in Medical Gazette.*

I have found the muscular and articular pains to be most severe in the jaundiced cases—an observation worth recording from the connexion which subsists between jaundice and rheumatism, as has been particularly adverted to by Dr Graves.[1]

I find articular pains mentioned by Don Franciso Flores Moreno as having occurred in the yellow fever which prevailed at Cadiz in 1800, 1804, 1810, and 1813. This acute observer remarks: "Another symptom not mentioned by any author, and which has often been noticed on the 6th day, as indicative of a favorable termination, consists in acute pains in the various articulations, particularly in the wrists, preventing all motion on the part of the patient. They have never continued after the night of the 7th day, when this affection has terminated in a restoration to health, or in a true ataxy ending favorably."[2] In the present Edinburgh epidemic, the muscular and articular pains are also most severe at the commencement of convalescence.

7. *The eruption resembling measles is absent in almost every case in the present epidemic.*

Certainly, one of the most remarkable distinctions between the symptoms of the epidemic which now prevails, and the

---

[1] Clinical Medicine, p. 564.

[2] MORENO:—Ensayo Medico-Practico, sobre el Tifus Icterodes, fiebre amarilla, comunmente dicha, &c. Cadiz, 1813. The following is the passage quoted in the text: "*Otra senal ha solido presentarsé en el dia 6° de la enfermedad (de la que no se haya hecho mencion algun autor) la qual anuncia la favorable terminacion de ella. Consiste esta en unos vivos dolores de varias articulationes y principalmente de las munecas, que impiden todo movimiento al paciente, mas nunca han pasado de la noche del dia 7° en al que con tal éintoma ha terminado siempre la enfermedad en salud, ó en una verdadera ataxia cuyo exito ha sido favorable.*" P. 60.

typhus fever which has been common in Edinburgh for a number of years past, is the absence, with some rare exceptions, of the eruption resembling measles. At the time when Dr. Alison published his short account of the present epidemic, he had not met with any cases of the new, or "short fever," as he terms it, in which measly eruption was seen, a circumstance not at all remarkable, considering the early date of his paper, and the extreme rarity of this occurrence.[1] The early date of Dr. Craigie's paper also accounts for his making an even stronger statement on this subject, viz.,—"no eruption of spots is observed similar to that observed in genuine typhus."[2]

To give a correct idea of the striking nature of this difference between the two fevers, I may quote what Professor Henderson says in the report made conjointly by himself and Professor Reid regarding the epidemic fever in Edinburgh. He says, that "130 cases of both sexes were specially inspected with reference to this eruption. In 108 cases, the eruption was found; in 22, it was not found. Six of the 22 were not admitted till between twelve days and three weeks from the beginning of the fever; therefore, as will appear from what follows, it cannot be concluded that they had not had the eruption at an early period. Of the 16 cases in which no eruption existed at any time, the greater number were slight cases: one only could be termed a

[1] The passage in Dr. Alison's paper, to which reference is made in the text, is as follows:—"None of those cases running this short course have shown the true febrile eruption, resembling measles, although many have shown petechiæ, or circumscribed purple spots, originating in flea-bites, and extending apparently by little ecchymoses."—*Scottish and North of England Med. Gazette*, No. i, p. 1.

[2] Edin. Med. and Surg. Journal, Oct. 1843, p. 411.

rather severe case, extending to the 15th day.[1] Dr. Craigie observed the typhus eruption only in 79 out of 169 cases.[2]

Many observers have reported upon the presence of the eruption in the contemporaneous Glasgow fever of that period, and it appears, that it has there been very carefully looked for, and very generally observed. Dr. Cowan, in 1835-36, found, that in 2000 cases, $79\frac{90}{100}$ per cent. admitted had the eruption. Dr. Perry, another Glasgow physician, considers contagious typhus to be an exanthematous disease, like small-pox, measles, and scarlet fever.

We find a similar opinion entertained by most modern physicians, either in a limited or unlimited way. Dr. Alison, writing, in 1827, of the Edinburgh fever, says that the measly eruption is a symptom occurring in the majority of cases, and that the fever characterised by it is a connecting link between continued fever and the contagious exanthemata. This opinion is probably correct. It is not, however, my object here, to adduce arguments for or against any particular view of the pathology of typhus fever, but simply to show that the absence of measly eruption in the present epidemic does indeed distinguish it, so far as this character is to be regarded as diagnostic, from typhus, which is the most common form of continued fever in Edinburgh, and other places in Scotland. And further, that its *general* absence, and *occasional* presence, are both points of resemblance between it and the epidemic of 1817-20, described by Dr. Welsh, and which, in all its leading features, is identical with the present. That gentleman says, that "a measly-looking efflorescence on the skin was occasionally observed" in that epidemic.

[1] Edin. Med. & Surg. Journal, No. 161, for Oct. 1839, p. 437.

[2] Ibid. Vol. xxvii, p. 301.

While the almost universal absence of the typhus eruption presents an obvious difference between the phenomena of the ordinary and present epidemics, yet its occasional presence suggests to us the important inquiry, whether the two fevers, though apparently so different, are not the results of modifications of the same morbid poison ?

On this subject Dr. Alison remarks : " It is a curious and interesting question, whether this kind of fever has proceeded from the same poison as the usual typhus fever of Edinburgh, or is truly a separate disease ? It is quite certain, that the one has succeeded the other, within narrow limits, both of time and space, in different parts of the town ; and I have seen two instances, in which strictly typhoid [typhus ?] cases, with the characteristic eruption, have been brought in from the same rooms, in which a succession of the milder cases have occurred at the same time. But, on the other hand, I am aware of several cases, carefully investigated by my friend and colleague, Dr. Henderson, in which a succession of protracted typhoid [typhus ?] cases has been traced to one room, while all the cases in the neighbourhood have been of the mild and short fever. And one man under my care, after passing through a protracted typhus, with the characteristic eruption, and threatening of ulceration of the bowels, relapsed, with the symptoms of the usual epidemic, of which cases were lying beside him, and had the usual crisis, and second relapse—so that he might be said to have gone through both diseases in their present form before leaving the ward."[1]

We find the ordinary eruptive typhus driven from the field—the present form of fever gradually springing up as

[1] Alison (William P.) :—Scottish and North of England Medical Gazette, No. i, p. 3.

the other decreased. I am aware that it has been alleged, in conversation, by some physicians, that the few cases which have presented the measly eruption did not relapse—were of the continued type--and, in fact, were cases of a different disease. To this opinion I was also at first strongly inclined, more especially as it was currently alleged that these cases could be traced to *foci* of contagion where the same form of the disease prevailed. This opinion, however, is not tenable. It may be true that the cases of what are termed "true typhus," come pretty generally from the same houses; but then, do they not come also from the same families? May it not be peculiarity of constitution in these individuals, which determines this particular manifestation of the morbid poison? Though the constitution of an epidemic gives to it a character, yet idiosyncrasy causes families and individuals to be affected differently from the generality of persons. Who will maintain that the scarlatina poison does not produce mild cases, without sore throat and eruption, as well as the more severe cases with one or both of these characters?

Now, no person who saw the spots in the case of Mary Wallace, *on their first eruption*, could say, that it was not the true measly typhus eruption; and yet, the bronzing, purpling, and jaundice, together with the urgent vomiting, rheumatic pains, and the relapse at the usual period, proclaimed unequivocally that she was afflicted with the prevailing epidemic; or rather, perhaps, with a sort of bastard between the two forms of fever. She took the fever in the hospital, where, at the time of her seizure, there was not a single case that either had, or had had typhus eruption. Facts are wanting to enable us to speculate with advantage upon the question, as to whether all of those occasional cases with eruption proceed from the same poison as those without it; but this, at all

events, can be stated, that *there is such a thing as persons being occasionally affected with the measly eruption in addition to the usual symptoms of the present fever*—such persons, moreover, apparently getting the disease from a contagious poison evolved from, or generated by persons congregated together, but affected only with the prevailing form of the fever.

When I commenced the observation and study of the present fever, and indeed for a considerable time afterwards, I regarded it as *essentially and totally* different from typhus; but recent circumstances, and more matured weighing or evidence, have greatly modified this opinion. In the case of Mary Wallace, a bastard fever was distinctly recognised; and, as the season advanced, all the cases were more characterized by depression and general typhoid symptoms. The cases of continued fever, with and without measly eruption, are becoming more common in Edinburgh and also in Glasgow, as my friend Dr. Weir of the Glasgow Hospital informs me.

If some think that on this point there has been exhibited an undue reluctance to enter fully upon an important pathological inquiry, I beg to remind them that data are yet wanting to entitle us to discuss it fairly and with profit. This inquiry may be attempted in a subsequent publication at the close of the epidemic; but in the mean time, let the remark of Rousseau be remembered that "the truth is in the facts, and not in the mind which observes them;" and it is hoped that some important facts have been even here communicated as contributions to this part of the pathology of the fever.

An eruption like scarlatina, and other eruptions, have been observed by Dr. Rush in yellow fever.

8. *Severe vomiting is much more common, as are likewise gastric, gastro-hepatic, gastro-splenic, and gastro-enteric symptoms.*

Even in the mild cases, more or less pain at the epigastrium and vomiting are general symptoms. They have been urgent in the majority of those whom I have treated in the New Fever Hospital and subsequently in the Infirmary. They have not always gone together; and even in some fatal cases in which the black vomit occurred, there was no pain or tenderness of the epigastrium.

In the mild cases, the matters vomited are generally the ingesta tinged with green of various degrees of intensity. If the patient drinks incessantly, which is usual, the deepness of the green is less intense, from the immense quantity of fluid which is constantly being taken into, and at once ejected from the stomach, diluting the colouring matter; for it is very common for everything to be discharged as soon as it is swallowed.

[I must here interpolate a few lines. Soon after my work was published I entirely adopted the view of Dr. Henderson that typhus and the relapsing fever originate in two different morbid poisons. I said so in a paper published in the *London Medical Gazette* for April, 1849, and now reproduced in this collection of "Clinical Studies." Yellow skin and black vomit (as I have always said) are not distinctive of any particular fever.]

In the most severe of the yellow cases, there is sometimes a fine inky sediment in the vomit: at other times, the grounds are grumous—in consistence like the thick part of hare soup, and varying in colour from dark-brown to black. In a fatal case which occurred to me the other day,

there was a thick matter at the bottom of the vessel resembling the dark-green mud which collects in pools of stagnant water. Upon repeatedly washing this sediment with water, the green colour was almost removed, and what remained was like the grounds of hare-soup.

The grumous matter of the black vomit, in its various forms, is unquestionably blood extravasated from the capillaries of the stomach and chemically altered by the action of the acids of the stomach upon it. That the black vomit is altered blood has been again and again demonstrated at our autopsies, by tracing it to the sources of its extravasation, and finding large clots of blood in the submucous cellular tissue of other parts of the intestines in the same cases. The black colour has been doubtless produced by chemical action exerted between the acids of the stomach, and the iron of the blood.

The reader will be the better able to judge of the correctness of these remarks on the source of the black vomit in the present fever, by perusing the reports of cases already detailed, but particularly of some which I have had in the Royal Infirmary, to be added in the Appendix.

The following note by Dr. Gillkrest on the black vomit is interesting :—" Dr. Bone, who seems to have paid much attention to the examination of the fluids ejected from the stomachs of persons labouring under yellow fever, describes them thus : ' 1st. The contents of the stomach at the invasion of the disease. 2d. The fluid drunk, mixed with green or yellow bile. 3d. The fluids drunk, without any admixture or change. 4th. A fluid like indigo or China ink, brought up with some straining : I suppose it to be bile, for it coagulates with spirits of wine. 5th. A brown fluid, resembling urine in appearance. 6th. Brownish blood, not

flaky, proceeding from the fauces and gums, and perhaps partly, in some cases, from the pulpy cardiac opening of the stomach. 7th. Brown flaky blood, mixed with mucous matter, proceeding from the gums, fauces, and stomach, usually the precursor of the real black vomit. 8th. The *real black vomit*, which also is blood altered by its passage through the vessels of the villous coat.' At Gibraltar, in 1828, we were led to consider '*black vomit*' under the following forms: 1st. In thin flakes or portions of a brownish black colour, floating, like broken-up wings of a butterfly, in a glairy fluid, or in a fluid resembling an infusion of black tea. 2d. A perfect resemblance to a mixture of soot and water, or to the contents of a coffee-pot when the clear part of the coffee has been poured off. 3d. A homogeneous, intensely black substance, having a jelly-like consistence, and adhering in great abundance sometimes to the mucous coat: this, though never *vomited up*, and therefore more properly belonging to the *morbid appearances*, it is thought may not be altogether out of place here:—it is rarely found in the stomach, the intestines being much more commonly its seat. A simple test of true *black vomit* has been proposed, which is dipping into it white paper, which it does not tinge." [1]

What is said by Blane of the affection of the stomach and vomiting in the yellow fever of tropical climates, applies to our present yellow cases. "In all stages," says he, "of this disease, it is the affection of the stomach that affords the most distinguishing and important symptoms. As it advances, an unconquerable irritability of this organ comes on. Whatever is swallowed, whether solid or fluid, of whatever quantity or quality, is immediately rejected by vomiting. An almost incessant retching takes place, even without any

[1] Op. cit. p., 274.

extraneous irritation, which, commonly on the third day, ends in what is called the *black vomit*, the most hopeless of all the symptoms attending it." [1]

The acute pain of which many patients complain when pressure is made over the stomach and duodenum seems in the majority of cases to depend on flatulence alone. At all events, when accompanied by gaseous distension, which it generally is, I have found far more advantage derived from turpentine enemata, carminatives, and fomentations, than from leeches.

Fulness of the Liver has been noticed during life in several cases: but not so frequently as a similar affection of the spleen.

Congestion of the Spleen has occurred in a considerable number of cases. From the great enlargement of the organ, and the pain excited by the slightest pressure over it, I at first treated the affection as acute splenitis, but more careful consideration has now induced me to regard it simply as a congestive affection—especially from the enlarged spleens which I have had an opportunity of examining after the death of the patients presenting congestion only. The enormous congestion of this organ has as little to do with inflammation as have any of the other congestions met with in the fever.

As a good example of this complication of the fever, the fatal case of Daniel Lamb (to be given in the Appendix) is referred to. The subjoined case will point out what the splenic symptoms commonly were in those who recovered from congested spleens. During the patient's life the splenic affection was believed to be inflammatory.

[1] BLANE:—Diseases of Seamen. London, 1799. See p. 410.

CASE XXV.—SUMMARY.—*Coma on the 8th day.—Relapse on the 14th day—enlarged and tender spleen on the 18th day—sweating and sudamina on the 19th. Treatment: leeches, tartar emetic, &c. Recovery.*

James Pugh, a native of Edinburgh, aged 15, from Hamiliton's Close, Grassmarket, was

Admitted, 7th August (sixth day.)—His mother states that he is an apprentice to a tobacco manufacturer, but not employed for the last six months, during which time his food has been scanty. He had fever six years ago in the Glasgow Infirmary. There is no evidence of his having been exposed to contagion.

He was taken ill on the 2d August with rigors, headache, pain in the back, and loss of appetite: languor and restlessness have since been superadded. There is no fever eruption.

9th August (eighth day.)—Since he came into the Hospital he has had purgatives and a little wine. On admission he was speechless; and he can now only with difficulty be roused to answer questions. The bowels are confined. He complains of acute pain in the precordial region, increased by pressure.

Applicentur hirudines iv parti dolenti.

Habeat vini rubri ℥iv.

Sumat statim olei ricini ℥j.

Vespere.—He is much more lively. The countenance is almost natural, as is also the state of the tongue, skin, and pulse.

15th August (fourteenth day.)—*Relapsed.* The wine was omitted on the 11th. Since last report he has been gradually improving in every respect till to-day, when he has had a good deal of feverishness and headache. He has not had rigors.

18*th August (seventeenth day.)*—On the evening of the 16th, and last night, he had sweating without any rigors. He has a good deal of abdominal tenderness. No enlargement of the liver or spleen can be detected. The bowels are regular. The pulse is 100, of good strength. The urine is copious and the appetite good.

Admoveantur hirudines iv parti dolenti.

Habeat horâ somni pulveris Jacobi veri gr. v.

19*th August (eighteenth day.)*—Yesterday, between 3 and 4 P.M., he had a good deal of sweating, but since then he has not sweated. The leeches bled well. The pain has ceased in the part to which they were applied. The spleen can be distinctly felt to be enlarged, and to extend downwards an inch and a half below the ribs: on pressing over it pain is caused. The diaphragm descends less freely than naturally. The countenance is flushed. The respirations are 24. The pulse is 120, and sharp. The skin is hot and dry. The tongue is clean but dry. There is much thirst. The bowels are regular. He slept well last night.

R. calomelanos gr. iv; pulveris antimonialis gr. v. Misce. Habeat dosin horâ somni.

Habeat sulphatis magnesiæ ʒiij ex aquâ cras mane.

To have a bottle of ginger beer.

20*th August (nineteenth day.)*—He slept well last night. The powder was administered at 10 P.M. He began to sweat at 6 A.M. and still continues perspiring profusely. On the abdomen sudamina are distinctly perceptible. There is no pain in the region of the spleen, and much less turgidity of the organ. The pulse is 80, and feeble. The tongue is clean and moist. He has great thirst, slight headache, and much debility.

Quiescat.

21*st August (twentieth day.)*—The sudamina observed yesterday, are still visible to the eye, but are not so perceptible to the touch. He has had no more sweating. He complains of general headache and intolerance of light. The lachrymal secretion is deficient and the pupils are much dilated. There is general abdominal tenderness, especially in the region of the spleen. The bowels have been opened twice. He has taken no medicine since the 19th.

R. aquæ acetatis ammoniæ ℥*vi; tartratis antimonii et potassæ gr. i.; syrupi simplicis* ℥*j.—Misce. Sumat* ℥*j ex aquâ,* ℥*tiâ q. q. horâ.*

22*d August (twenty-first day.)*—He slept well last night, and feels more comfortable to-day. There is less headache. The bowels are open. He had some sweating during the night, and the skin is at present moist.

Continuetur mistura.

24*th August (twenty-third day.)*—Has been doing well since the 22d, and has now neither headache nor abdominal tenderness. The skin, tongue, and expression are natural. The appetite is improved. The pulse is 80, and deficient in strength.

Habeat victum plenum.

11*th September (forty-first day.)*—Since the 24th August he has been steadily improving. Since that date he has had full diet. He is now dismissed, quite well, and not complaining of feebleness.

Gastro-enteric symptoms are, in general, obviously referable to the congested and irritated state of the mucous membrane of the stomach and bowels. There seems good reason also to believe that in many cases they are aggravated by loose clots of effused blood, and by the vitiated

secretions themselves, which, acting as foreign bodies, tend still farther to increase the irritation. This circumstance probably accounts for the protracted diarrhœa in some severe cases which recovered. Much of the pain, however, which is complained of in the bowels arises from gaseous distension which we see occurring in some of the mildest cases to a great extent.

A few of the other more important points in the pathology of the disease remain to be noticed. Those to which I propose to advert are :—

1*st*, The state of the blood ;

2*d*, The origin and mode of propagation of the fever ; and,

3*d*, The structural lesions caused by the fever.

1. *The state of the blood.*

There seems good reason to believe that a number of individuals, who do not actually succumb under the influence of the epidemic itself, are nevertheless affected by the epidemic influence in a marked and characteristic manner, such as by slight chills and sweatings, headache, and vomiting, accompanied by prostration of strength. All of these symptoms, in a mild form, may occur combined, or some of them only may be present. In one instance, in which the whole of the group of symptoms occurred together with bronzing of the countenance, they entirely disappeared within twenty-four hours, an emetic having been given three hours after their invasion. The patient referred to is the nurse Margaret M'Kenzie, who, at a subsequent period, went through a well-marked ordinary attack of the disorder. The other instance occurred in my own person : the symptoms entirely disappeared after a two days' absence

from Edinburgh in the Highlands of Argyleshire. It would be easy to multiply similar illustrations, but this is unnecessary, as it is generally admitted that ephemeral and ill-formed cases are by no means uncommon during the prevalence of every epidemic. Probably, change of air, either alone or conjoined with the use of certain medicines, might in a considerable number of cases have proved sufficient to ward off the disease or arrest it *in limine*. This belief is principally grounded upon the fact, that for some days before there exists any other evidence of the presence of the disease, the countenance assumes a peculiar premonitory hue, indicating, I apprehend, a dissolved state of the blood and a want of tone in the capillary vessels. When the vital fluid is still more dissolved in the subsequent stages of the disorder, we also find an increased ability to circulate in the capillaries from the enlarged calibre or relaxed state of these vessels—disabling the congested organs of secretion from performing their functions. This is frequently manifested by the scanty urine and yellow skin, which latter symptom, as the cases detailed sufficiently prove, does not arise from any obstruction in the biliary ducts, but depends upon the bile not being separated from, or being reabsorbed by the blood. Another class of symptoms produced by this capillary congestion is hæmorrhage from the mucous membranes with occasional black vomit.[1]

That the blood really is in a dissolved state, was made perfectly manifest to us, *first*, by the imperfect coagulation which it underwent when drawn from the veins of patients, a homogeneous spongy mass being formed, in place of a

[1] For some valuable remarks on the state of the capillaries in fever, see Dr Craigie's learned work on the Practice of Medicine.

firm fibrinous clot, with a supernatant serosity; *second*, by the ecchymosis which was uniformly observed to surround flea-bites or other slight injuries of the skin; *third*, by the frequent occurrence of purpurous spots; *fourth*, by the hæmorrhages; and, *fifth*, by the discoveries made by the microscope.

Professor Allen Thomson had the goodness to lend me his able assistance, in examining the blood of a number of my patients, by means of the microscope. A few drops were taken on the same day (24th Oct.) from the thumbs of about a dozen persons, some of them in the pyrexial, and others in the apyrexial stage of the disorder. It was found that in all of them there were an unusual number of pus globules; and in some cases, in addition to this, all the globules were found serrated and notched. A gentleman present upon this occasion was observed to have his blood exactly in the same state as the fever patients, and within two days he was seized with fever, and went through two mild attacks, or—to use conversational phraseology—*the fever ana the relapse*. The blood of some other healthy persons was also examined at the same time: it exhibited nothing unnatural, and none of these latter individuals have taken the fever although more than a month has now elapsed since the observation was made.

I have been told by Dr. Douglas Maclagan, that he has detected urea in the fluid found within the ventricles of the brain, and in the blood of one or two of Dr. Henderson's fever patients, in whom he looked for it at that gentleman's request. The observation is one of great interest, but is not at variance with what might have been anticipated. Since an early period of the epidemic, I have treated a certain class of head symptoms by cupping in the lumbar region,

together with the use of diuretics, from a belief that urea was circulating with the blood, in consequence of the kidneys being incapable, from congestion, of exercising their function. I apprehend, however, that urea is seldom *abundant* in the blood of our fever patients, as it is extremely rare to meet with symptoms at all resembling those known to characterize its action as a poison resembling foxglove in its effects; and, according to many, such are the toxicological manifestations of urea, when administered to animals as a poison or to the human subject as a medicine.[1] The muscular and articular pains may possibly depend on uræmia.

Dr. Stevens has particularly described the morbid character of the blood in yellow fever. In the days of exclusive humoral pathology, it was pointed out by many, that the blood was in a dissolved state in that and other fevers; but it is only recently that attention has been recalled to the fact. Dr. Mitchell mentions that in the yellow fever of Virginia in 1741, "blood drawn from a vein was invariably dissolved: the same state of the blood was always observed in many persons who had been exposed to the miasmata who discovered no other symptoms of the disease." On the fourth day after the attack Dr. Mitchell uniformly took a few ounces of blood from the temporal artery, when he constantly found it dark and venous-looking. Dr. Potter of Baltimore, Dr. Copland, and others, have recorded many similar experiments.

---

[1] Urea is composed of oxygen, 26·54; hydrogen, 6·71; carbon, 20·02; azote, 46·73. It has been used in diabetes. When we recollect its highly azotised constitution, it is not wonderful that it proved useful. Some suppose urea to be diuretic in doses of gr. xv to ℈j; but there is no good ground for this belief.

2. *The origin and mode of propagation.*

That the prevailing fever is strikingly different in its phenomena from the ordinary fever of Edinburgh has been already fully established; although, purposely, no dogmatical opinion has been expressed as to whether the morbid poison which causes the present disease be or be not that which gives rise to the true exanthematous typhus, merely modified by the operation of other poisons, terrestrial, atmospheric, or imported.

In connexion with the progress of the prevailing disease in this country, since its first appearance, at least twelve months ago, in Dundee, Greenock, and elsewhere, I have collected some interesting data, which (should I have leisure and ability to add to them) may serve to throw some light on the history of its progress. In the mean time, it may be intimated that facts are not wanting to give colour to the belief that the disease has been imported into this country: but certainly, I have heard of none which do more than warrant a suspicion.

The disease is contagious. Of this we have sufficient evidence in the fact, that almost all the clerks and others exposed to the contagion have been seized. Dr. Heude, and his successor Mr. Reid, in the New Fever Hospital; Dr. Bennett, my successor there; Mr. Cameron, and his successor Mr. Balfour in the adjoining Fever House; as well as most of the resident and clinical clerks in the Royal Infirmary have gone through severe attacks during the past summer and autumn. Hardly any of the nurses, laundry-women, or others coming in contact either with the patients or their clothes, have escaped. At one time there were eighteen nurses off duty from the fever; and of those who have recently been engaged for the first time, or of those

who have hitherto escaped, one and another is from time to time being laid up.

It may be fairly objected that while these illustrations incontestibly prove that the disease is contagious, they do not give a fair view of the degree in which it is so, inasmuch as all the individuals specified were not only much exposed to the poison, but were also, from the laborious nature of their respective duties, reduced in strength, and consequently peculiarly predisposed to succumb under its influence. It is admitted that fatigue is a predisposing cause; and also that the contagion is rendered infinitely more dangerous by the *consortio ægrotorum*, even in well-ventilated fever wards, than it is in other circumstances.

Long-continued exposure to the poison seems also to operate most evidently against the chance of escape, as we find that comparatively few of the dispensary medical officers and pupils—a very numerous class—have taken the disease. These gentlemen are much exposed to the fever, and undergo a great amount of fatigue; but they are generally with their patients only for short periods, and have constant opportunities of inhaling an uncontaminated atmosphere.

I have seen and heard of a considerable number of isolated cases of various degrees of severity in the best districts of the New Town; but have never yet known of an instance of the disease propagating itself in these localities. The same observation has been made by several medical friends, of whom I have made inquiries on this subject. That at a more advanced period of the epidemic it may gain a footing in the New Town, would not be at all remarkable, considering the unrestricted intercourse between the poor of the infected, and the wealthy of the

uninfected districts. Besides, the midnight labours of the gay season will soon be in operation as a predisposing cause.

Those London physicians who have had the best opportunities of observing typhus fever, believe, that the poison in which it originates, does not extend for more than three or four feet from the patient; or, at all events, that at a greater distance, it becomes so diluted by the atmosphere, as to be innocuous.[1]

It appears, that the contagion of the fever at present prevailing is subject to a similar law. James Middleton was sent to my fever ward, No. 6, in the Royal Infirmary, by the admitting clerk. When I first saw the patient on the following day, I found that he laboured under empyema and disease of the heart, but neither had, nor had had any symptoms of fever. I immediately ordered his removal to a general ward, but unfortunately my orders could not be, or at least were not, executed till the evening of the following day, when he was taken to No. 4, after having been in the fever ward for about fifty hours. During the first day of his residence in the general ward, he continued without any symptoms of fever; but on the forenoon of the following, he had the usual initiatory febrile paroxysm in so well-marked a form as to convince me (from the first) of its

[1] Believing in the certainty of this law, the fever patients are distributed (with impunity, it is said) throughout the general wards of the metropolitan hospitals, care being taken that they are placed at due distances from each other and from the rest of the patients. If these fever patients are too numerous in the ward, the atmosphere becomes tainted with the morbid poison, and the disease spreads. Similar results have followed the same experiment in this infirmary; and I am quite satisfied that were the fever patients *cautiously diffused through the general wards*, the lives and health of many physicians, clerks, and nurses might be spared.

nature. On the 5th day from his seizure, he died, intensely yellow, having had much inveterate vomiting, and black vomit for some hours before his death. In the next bed to this man, lay Daniel Lamb, an epileptic patient, who was in the habit of sitting on the fever patient's bed during a great part of the day. He was the only person in the ward who had any intercourse with him, and he was the only one who was seized with the fever. He was taken ill on the day that his neighbour died; and within five days he also died with exactly the same symptoms. These two cases were the most rapidly fatal, and the most malignant in their symptoms, of any that I have seen; and yet, of the other sick and convalescent patients in the ward—always above twenty in number—none have been seized with fever since these deaths took place.

From the number of laundry-women who have been attacked, it appears that the clothes of our fever patients are especial repositories and communicators of the fever poison. An interesting fact, which may be introduced here, as it is probably to be explained by what has just been stated, was communicated to me by Mr. Nicholson, from the Island of Skye, one of my pupils. He informed me that two reapers, who had had the fever in Edinburgh, arrived in his neighbourhood after their return home at the close of the harvest, when not a single case of the fever had been seen in the district. The mother of these persons, with whom they lived from the time of their arrival, was in a few days seized with the disease—and died. Other severe, and, in several instances, fatal cases occurred among the neighbours who had waited upon her; and the disease is now spreading to such an extent over the whole territory as greatly to alarm the inhabitants. The people consider it a

new pestilence among them, and are so dismayed at its appearance and so afraid of its contagion, that they are ceasing to attend at church on Sunday. It is not, of course, to be supposed that all of the Skye cases have originated in the arrival of the two individuals referred to; for, shortly after they returned, many others came back from their annual visit to the south, among whom were not a few who had been patients in the fever hospitals of Edinburgh and Glasgow.

3. *The structural lesions caused by the fever.*

The following summaries of all my dissections will enable the reader to see, at one view, what are the structural lesions caused by the fever :—

DISSECTIONS OF FATAL CASES IN THE NEW FEVER HOSPITAL.

Name, age, and duration of the disease.	*Appearances on dissection.*
James Law, aged 74. Died on the 10th day. *Vide page* 44.	Bile-ducts pervious; gall-bladder contained inspissated bile; liver natural; gastro-intestinal mucous membrane here and there dark coloured, with submucous exudation of blood; black matter similar to what was vomited, found in stomach, &c.; the spleen weighed 6 ounces, and was under the average bulk; kidneys not congested; membranes of the brain not congested; large livid patches on the external surface of the body, but no yellowness of the surface or internal parts.
George Johnstone, aged 20. Died on the 7th day. *Vide page* 50.	Bile-ducts pervious; gall-bladder contained inspissated bile; gastro-intestinal mucous membrane dark coloured, with black patches, and submucous exudation of blood; heart very soft; kidneys yellow in all their textures; liver natural; yellow serum in ventricles of brain; brain natural; yellowness of all the white tissues.

Name, age, and duration of the disease.	*Appearances on dissection.*
Archibald Campbell, aged 40. The day of the disease on which he died is not known. *Vide page* 55.	Bile-ducts pervious; gall-bladder contained tenacious inspissated bile; gastro-intestinal mucous membrane vascular, with submucous exudation of blood; stomach over one third of its surface was very black, from blood effused on the surface of, and under the mucous membrane, and the same appearance was found in other parts of the intestines; spleen weighed 8 ounces, and was easily broken down; the white textures generally were yellow; heart healthy; under endocardium, especially in the left ventricle, there was considerable effusion of blood.
Jane Merrilees, aged 39. Died on the 14th day. *Vide page* 61.	Bile-ducts pervious; gall-bladder contained bile; spleen greatly enlarged, very soft, and weighed 1 pound 7 ounces; heart natural; everywhere much congestion.
Mrs. Morris, aged 45. Died on the 24th day. *Vide page* 73.	Old disease of the lungs; ulceration of the bowels; black patches of altered blood in the rectum.

DISSECTIONS OF FATAL CASES IN MY WARDS OF THE ROYAL INFIRMARY.

James Middleton, aged 50. Died on the 5th day. *Vide Appendix.*	Empyema, and other diseases of the chest of old standing; intense congestion of all the internal organs; extravasation of blood under, and black adhesive jelly upon the mucous membrane of the stomach, and duodenum; spleen enormously distended, and weighed 2 pounds —it broke down under the fingers, like loosely coagulated blood; yellowness of the external surface, and of all the internal white textures; bile-ducts pervious, and a moderate quantity of bile in the gall-bladder; liver enlarged, apparently from old disease.

Name, age, and duration of the disease.	*Appearances on dissection.*
Daniel Lamb, aged 37. Died on the 5th day. *Vide Appendix.*	Liver firm, dark-coloured, and turgid with blood: weighed 4 pounds 8 ounces. Spleen easily broken down: weighed 1 pound 11½ ounces: bile-ducts pervious: gall-bladder moderately full of very black thick bile. In the Stomach, a considerable quantity of the black matter usually found in such cases: in the sigmoid flexure of the colon, submucous exudation of blood. Cranial bones unusually thick: a large quantity of yellow fluid in the ventricles of the brain: numerous spiculæ in the cavity of the cranium. Heart weighed 15 ounces. Yellowness of the surface, and the white textures of the body.
Archibald Davidson, aged 20. Died on the 9th day. *Vide Appendix.*	Spleen was firm and natural—it weighed 5 ounces; Liver firm: of a dirty pale yellow colour: gall-ducts pervious, and black bile in the gall-bladder. Black tenacious jelly adhering to mucous membrane of the Stomach, and other parts of intestinal canal: large clots of blood in the submucous cellular tissue of the stomach: the clotted blood encircled the caput cœcum in thick bands under the mucous membrane. The body was yellow externally, as was likewise every white tissue within the body: the penis and scrotum had a dark gangrenous appearance, and on the latter, there was a small excoriated surface.

The *post-mortem* appearances must of course vary somewhat with the duration and malignancy of the disease; and a greater diversity of lesions would undoubtedly have been presented to the reader if more dissections had been obtained. Enough, however, has been seen and is here recorded, to indicate at least the nature of the lesions to be expected in

similar cases :—viz. 1. Abundance or even excess of bile, and a pervious state of the biliary ducts; and 2, More or less congestion of organs, with, frequently, extravasation of blood in various situations.

These appearances are either identical with, or analogous to, what the majority of observers have noticed and described as being those found in persons dying of yellow fever. It may, therefore, be interesting to refer to a few of

THE PRINCIPAL ANATOMICAL LESIONS FOUND IN THE "YELLOW FEVER."

a. *Appearances of the surface of the Body.*

According to many authors the yellow colour of the surface of the body becomes more decided after death. This sometimes changes for a black or dingy hue, which is particularly well marked in the penis and scrotum. There are often slight excoriations on the scrotum, and M. Bally and others have seen the penis to be what they term *gangrenous* at its extremity. Dark lines and black patches are frequently seen in the axilla and other parts of the body.

b. *Areolar Tissue.*

Desmoulins found that, upon cutting into the areolar tissue, blood exuded and gas escaped with a hissing noise.[1]

---

[1] DESMOULINS :—Considérations sur l'état anatomique de la peau et du tissue cellulaire dans la Fièvre Jaune.—(*Journal Complimentaire*, t. xii, p. 17.)

c. *Muscular Tissue.*

The muscular tissue is of a darker colour, and softer texture than natural. Gillkrest mentions some dissections made during the last Gibraltar epidemic, in which "blood was infiltrated into the minuter fibres of muscles" which were black and very soft. He states "that in one man this infiltration took place into the whole of the muscles of the right thigh, the abductors excepted; in another, into the gastrocnemii of the left leg, and flexors of the right arm. In a third case, precisely half of the diaphragm (right side) was found in this state, and the infiltrations bound down by the foldings of the peritoneum, extended in a most singular manner in one continuous sheet from the diaphragm, posteriorly, down the right side to the bottom of the pelvis, keeping with great precision a line corresponding to the axis of the vertebral column, and covering every organ or part of intestine, &c. which lay on that side. It is worthy of notice, that in this last-mentioned case there was no black vomiting. In none of the cases, were ruptured vessels detected."[1]

d. *Thorax.*

There is often a yellow serous effusion into the pericardium, occasionally mixed with black blood, (Bally, &c.) The heart is generally distended with fluid blood. Ecchymoses of the pleura have been described by Dalmas. During the epidemic of Leghorn, Lacoste,[2] Palloni,[3] and others

[1] GILLKREST:—Cyclopædia of Practical Medicine, vol. ii. p. 277. London, 1833.

[2] LACOSTE:—Dissertation sur la fièvre regnante à Livoune, &c.

[3] PALLONI:—Osservazioni mediche. Livorno, 1824.

state that they not only found bloody effusions but even gangrene of the diaphragm, pleura, and abdominal muscles. Probably they mistook for gangrene the infiltration of blood observed by Gillkrest.

e. *Abdominal Viscera.*

Stomach.—The blood-vessels of the external surface of the stomach are generally enlarged and tortuous—the inner surface being stained with red and purple or even black patches. These appearances have led some to suppose, that during the progress of the fever the stomach had been the seat of inflammation and mortification. Hence, some authors, following Broussais, have considered gastritis or gastro-enteritis to be the pathological condition of the disease —a fallacy from which the most dangerous practical consequences have resulted in respect of this as well as of other forms of fever.

The dark-brown or black patches, visible on the internal surface of the stomach, are entirely produced by contact with the secretion called black vomit, for when this is thoroughly washed away, the mucous coat becomes pale or has merely a slight stain left on it. Sometimes, instead of patches, the whole mucous membrane presents one uniform brown tinge : in other cases it is quite pale. It is generally loose and easily abraded. When torn off, it often appears like a congeries of engorged capillaries : numerous red spots are seen immediately beneath it, particularly at the cardiac extremity, presenting the appearance termed by the French *rougeur pointillac.* Duflot[1] and others have detected a

[1] DUFLOT :—Etudés sur la Fièvre Jaune : thèse de Paris.

fluid, identical with the black vomit, existing in the extremities of the blood-vessels, and more or less of which is usually found in the cavity of the stomach. Occasionally, a large quantity of pure blood has been discovered in the stomach : this happened in one eighth of the cases examined by Bally, François, and Pariset ; and Chevé states in his thesis that he observed it three times in the Senegal fever.[1] Sometimes the stomach is distended with gas.

Intestines.—The appearances in the intestines often resemble those in the stomach ; but they generally exist in a less marked degree. In some protracted cases there are minute ulcerations. Jackson states that the diameter of the intestines is sometimes contracted, and that intro-susception is not uncommon.[2] The black matter is in some cases found only in the small intestines. Gillkrest has pointed out that the glands of Peyer are never diseased.

Peritoneum.—Larrey states that in Egypt he always found what he considered inflammation of the peritoneum.[3] Numerous French and Spanish authors describe quantities of black blood as being found in the folds of the mesentery.

The Spleen is, according to most authors, frequently gorged with blood and softened.

The Pancreas is seldom altered in colour, consistence, or volume. Dalmas and Lazo de Perez mention some instances, however, in which it was enlarged.[4]

---

[1] CHEVE :—Rélation des Epidémies de Fièvre Jaune, qui ont règné à Gorée et à St. Louís (Sénégal) pendant l'hivernage de 1830 : thèse, Paris, 1836.

[2] Vide p. 93.

[3] LARREY :—(Campagnes, tom. ii.) Mémoire sur la Fièvre Jaune, Paris, 1821.

[4] LAZO et PEREZ :—Colleccion de inspecciones anatomicas relativas a la Fiebre Amarilla. Cadiz.

The Liver.—The structure of the liver does not seem, as many have supposed, to undergo any uniform alteration but is sometimes, on the contrary, quite healthy in appearance. The morbid anatomy of this organ, therefore, does not throw much light upon the pathology of yellow fever. But the appearances found on dissection, when viewed in connection with the alterations of the other viscera, are of some importance. Jackson says that the liver and spleen are often gorged with black blood, "so as to be perfectly rotten," and that generally, even in mild cases, they are turgid and increased in size. He describes the gall-bladder as being sometimes full and sometimes empty, and as containing bile, either thin, or thick and black like tar or molasses. Gillkrest states that during the greater part of the Gibraltar epidemic in 1838, the colour of the liver was pale olive or a mixture of green and yellow in ordinary cases, but little altered in the more malignant. In women and children the tinge was paler. He found the gall-bladder diminished in size and containing a minute quantity of orange-coloured, or green bile, and occasionally of pus. The cystic duct is reported to have been impervious in a few cases.[1]

Louis attaches great importance to a particular appearance of the liver, which he found to be the most constant of all

---

[1] I do not presume to say that so accurate an observer as Dr. Gillkrest made a mistake regarding this state of the cystic duct: but I have known of its having been declared impervious, when in a perfectly normal condition, simply from the examiner forgetting that in pushing the most delicate probe up the duct from the gall-bladder, the instrument is likely to meet with an impediment from a fold of mucous membrane. The blowing upwards of air through a small blow-pipe is the proper method of exploration.

the *post-mortem* appearances which he observed at Gibraltar. As a similar appearance was met with in some of my cases and as I am informed that it has been often met with at Dundee during the last twelve months, his description is subjoined: —"The most remarkable lesion of the liver was the alteration of its colour, which was more or less exactly the same in all the cases, and through the whole extent of the organ, with three exceptions, of which I shall soon have occasion to speak. This alteration consisted in a discoloration, the liver being sometimes of the colour of fresh butter, sometimes of a straw colour, sometimes of the colour of coffee and milk, sometimes a yellowish gum colour, or a mustard colour, or finally, sometimes an orange or pistachio colour. This discoloration was not the same through the whole extent of the liver: it was more marked in the left, than in the right lobe; there it was also more uniform. In cases where the colour was uniform in the left lobe, there was in the right lobe a mixture of gum-yellow, orange, or red points, larger or smaller; or else we found in the right lobe a rose tint which did not exist in the left lobe. The cases in which the colour of the liver was formed by the mingling of different coloured points, were rare, and this disposition was somewhat remarkable in one of them where the liver presented a mixture of yellow and green points. The last colour could not be considered the result of commencing putrefaction, for the subject was opened six hours after death. In the three cases referred to above, in which the discoloration of the liver was not universal, the right lobe preserved its natural colour throughout, or in its obtuse edge only. With the discoloration of the liver we found a more or less marked paleness and a diminished quantity of blood, so that wherever this appearance of the liver was well

marked, the sections of it were dry and of an arid appearance in the left lobe."[1]

The *Kidneys* in general present no very remarkable alterations, though they are, like the liver and spleen, frequently gorged with blood, especially when there has been suppression of urine. Savuresi states that in the fever of Martinique—an epidemic characterised by much delirium and stupor—he constantly found inflammation as well as engorgement of the kidneys. He has also seen the *ureters* contracted and their surface adherent so as to obliterate the canal. Rochoux maintains, that he has discovered traces of phlogosis of the kidneys in one third of the bodies he examined.

The *Urinary Bladder* is often contracted and thickened.

f. The Brain.

The vessels of the dura mater and pia mater, as well as those of the choroid plexus, are usually gorged with dark blood. Serous effusion is rare in some epidemics and common in others. Rochoux, in describing the yellow fever of Guadaloupe, states that inflammation of the membranes of the brain was seldom seen, and when it did occur was less severe than in Europe ; but this statement is not confirmed by others. Amidst the discordance of opinion we can hardly hope to arrive at the truth ; this, however, we learn, that this lesion varies in different epidemics. When there is coma before death, it is natural to expect hyperæmia of the brain. Some have described softening, and others, harden-

[1] Louis :—Anatomical, Pathological, and Therapeutic Researches on the Yellow Fever of Gibraltar of 1828 ; translated from the manuscript, by G. C. Shattuck, junior, M.D. Boston, 1839. *Vide* page 117.

ing of the brain. The spinal canal has been found to contain yellow serum, especially in the lumbar and sacral regions. Dr. Thomas (of New York) believes the seat of the disease to be in the spinal cord, and he relates ten cases in which he supposed that he had detected inflammation of the investing membranes. He mentions also, that he had seen inflammation of the stomach in all his cases. The nerves were attentively examined by François, Bally, and Pariset, but no morbid appearances were discovered. Cartwright, in his essay on the yellow fever of Natchez, states that he found the semilunar ganglia and cœliac plexus much altered : their neurilemma and their tissue were of a deep red colour and mottled with black spots.

All these appearances seen in different parts of the body in "yellow fever" are evidently the result of congestion, and many of them, not observed in my dissections, would in all probability have been seen had they been lookea for.

CHAPTER IV.

SEQUELÆ OF THE FEVER.

My opportunities of studying the sequelæ of the fever have necessarily not been very extensive, as leisure could not be afforded to watch any considerable number of patients after their dismissal from the hospital.

The post-febrile affections which I have noticed in the hospital are :—

1. *A peculiar form of ophthalmitis usually preceded by amaurotic symptoms.*
2. *Glandular swellings.*
3. *Boils and pustular eruptions.*
4. *Effusion into the knee-joint.*
5. *Swelled legs and ankles.*
6. *Pain in the feet, with and without swelling.*
7. *Paralysis of the deltoid and certain other muscles.*
8. *Sloughing of parts.*

1. *A peculiar form of ophthalmitis usually preceded by amaurotic symptoms.*

This disease is particularly interesting from the resemblance it bears in some of its characters to rheumatic ophthalmia, and from its occurring as a sequel to a fever in which muscular and articular pains are very prominent symptoms. It has been described by Dr. Mackenzie, in

the Medical Gazette for the 24th of November, 1843, as a sequel of the fever now prevailing in Glasgow; and also by Dr. Jacob and others, as having occurred in persons after recovering from the Dublin epidemic of 1826.

The first case which occurred to me, I sent to Dr. Watson, at the Eye Infirmary. From him I first learnt that the affection was prevalent in Glasgow, and had attracted the attention of Dr. Mackenzie, the eminent oculist of that city.

The person in whom I first noticed this disease was a man aged 50, who was admitted to the New Fever Hospital on the 29th August when convalescent from a second relapse, that is to say, third attack of the fever. He was very feeble, but made no particular complaint, except of slight general articular pains and intolerance of light. There was much lachrymation. Nourishing food and a quinine mixture were ordered. In a few days, as he became much stronger, he was removed to the convalescent ward. I heard nothing of the eye for some days, when, upon my proposing his dismissal, he complained of dimness of vision, with pain in the organ and above the orbit. Upon examining the right eye, the lens was found to be hazy, and the sclerotic to have a muddy look as contrasted with the same parts of the other eye. The cornea was roughened with extremely minute ulcers, the individual outlines of which were hardly visible except when looked at in a strong light and through a magnifying glass. A blister was applied behind the ear and a discharge kept up from the surface for some days: a few drops of a solution of two grains of nitrate of silver in an ounce of distilled water were daily let fall upon the open eye. Under this treatment the pain entirely ceased, but the ulcerations of the cornea showed little disposition

to mend, and the blindness increased. It was in these circumstances that the patient was sent to the Eye Infirmary.

The only other persons whom I have seen with post-febrile ophthalmitis were two females. In them the disease was of a much more acute character, the conjunctivæ and sclerotics of both eyes being intensely injected. There was severe pain with almost total loss of vision. For two or three days before the inflammatory symptoms disappeared, there was amaurosis. Both patients were very weak. The treatment consisted in fomentations, leeches, the use of a shade, and a liberal allowance of wine. When they left the hospital no visible signs of disease existed in the eyes, but there was still impaired though returning vision.

The following is the most important part of the valuable memoir of Dr. Mackenzie :—

"Typhus fever is sometimes followed by muscæ volitantes, or even by amaurosis, and in some rare instances by phlebitic ophthalmitis. Certainly, no febrile disease with which we have been hitherto acquainted in this country is followed by such an inflammatory affection of the eye, as that which I am about to describe. I have known the disease which is called hay fever, followed by intermittent ophthalmia, of iritic character. Dr. Lawrie informs me, that remittent fever in India is sometimes followed by corneitis and sloughing of the corneæ.

"I shall now select from the journals of the Glasgow Eye Infirmary a few cases illustrative of the affection of the eye which has appeared as a sequela of the remittent fever now prevailing. From the 8th August to the 31st October, when I finished my quarterly period of attend-

ance, 36 cases of this description were taken on the list. The general subjects of the affection in question have been from 17 to 20 years of age; but it has spared neither young children nor old people. The youngest out of the 36 was 18 months old; the oldest was 56 years. The general character of the disease has been partly amaurotic and partly inflammatory. In by far the greater number of cases, the eyes attacked had been previously healthy, but in some instances they had suffered from other diseases and in one case, they were already in a great measure disorganized.

"I.—*Amaurosis and ophthalmitis after remittent fever—treated by leeches, calomel and opium, belladonna, blisters, and quina—complete recovery.*

"No. 13185.—*Aug. 8th*, 1843. Margaret Spence, aged 12, was seized with remittent fever, which she calls influenza, nine weeks ago. Right eye became red three weeks ago. Conjunctiva still somewhat red; pupil dilated, and does not contract readily on exposure to light; vision of right eye so dim, that she does not see the eyes of a person sitting before her. Circumorbital pain. Pulse 180.—*Hirud. vj ad tem. dext. R. subm. hydr. gr. iv.; pulv. opii gr. j. M. ft. pulv. hor. som. sumend. Cras mane sumat sulphatis magnesiæ* ℥ss.

"9*th*.—Less pain; vision rather better.—*Extr. bellad. ad palp. dextr. R. subm. hydr. gr. xij, opii gr. ij, sacc. alb.* ℈j. *M. opt. et divide in pulv. xij. Cap. j 8â qq. hora.*

"10*th*.—More pain.—*Hirud. vj ad palpebr. dext.*

"12*th*.—Eye easier, and less red. Vision rather better. Right cornea more than naturally flexible.—*Rep. sulph. mag. Vesicat. pone aur. dextr.*

"13*th*.—Pain subsides. Vision improves.

"15*th*.—Sees best when she looks over her nose.

"16*th*.—*Rep. belladon.—Vesicat. ad tem. dextr.*

"17*th*.—Pupil widely dilated, and vision consequently more obscure.

"18*th*.—Pupil not so widely dilated. Vision improved. No pain.

"21*st*.—*Cap. pulv. subm. hyd. et opii j.—Rep. vesicat. pone aur. dextr.*

"27*th*.—Vision much improved; pupil of natural size. Has caught cold, and complains of pain in the chest.—*Pediluv. tepid. vespere.—Omit medicamenta.*

"28*th*.—*Hirud. vj ad pectoris partem dolentem.—Cap. ol. ricini* ℥*ss.*

"29*th*.—Relieved by the leeches.

"30*th*.—Is confined with measles.

"*Sept* 6*th*.—Dimness of sight of the right eye still continues.—*Vesicat. parvum ad temp. dextr.*

"13*th*.—Bowels loose.—*Cap. quam primum tinct. opii gtt. x. R. opii gr. j. Cretæ ppt.* ℥*ij. M. et div. in pulv. xij. Cap. j post sedes singulas liquidas.*

"15*th*.—Bowels still loose.

"24*th*.—*Cap. sulph. quin. gr. j. ter indies.*

"*Oct.* 15*th*.—Says her eye is perfectly well.—*Omit. remedia.*

"II.—*Retinitis and amaurosis after remittent fever—complete cure by leeches, calomel and opium, blisters, and quina.*

"No. 13186.—*Aug.* 8*th*, 1843. Margaret Paterson, aged 11, had remittent fever in the end of June. Eight

days ago, the right eye appeared red. The conjunctiva and sclerotica are moderately injected; the iris is of a green hue; the pupil somewhat dilated, and very sluggish; the retina retains merely a perception of light and shade. No pain of head; pulse 120; tongue clean.—*Hirud. vj ad temp. dextr.—R. subm. hydr. gr. iv, pulv. opii gr. j. M. ft. pulv. hor. som. sumend.—Cras mane sulph. magn.* ℥*ss.*

" 9*th.*—Tells a pen and other objects with right eye.—*Rep. pulv. et sulph. magn.—Vesicat. pone aur. dextr.*

" 10*th.*—Eye painful; much lachrymation; vision again worse.—*Hirud. vj ad palp. dextr.*

" 14*th.*—Symptoms subside. Sees best when she looks dextrad.—*R. subm. hydr. gr. xij., pulv. opii gr. j, sacc. alb.* ℈*j. M. div. in pulv. xij. Cap. j o. n.*

" 15*th.*—*Vesicat pone aurem dextr.*

" 19*th.*—Has by mistake been taking a powder thrice a day.—*Cap. pulv. j o. n. tantum.*

" 22*d.*—Right pupil not so much expanded as left. Vision improves slowly; is still most defective when she looks sinistrad.

" 25*th.*—Vision continues to improve.—*Omit. pulv. subm. hydr. et opii.—Cap. sulph. quin. gr. j ter indies.*

" 27*th.*—Still improves.

" *Sept.* 1*st.*—Vision much improved.

" 3*d.*—Bowels confined.—*Cap. pulv. jalap. comp. gr. xv.*

" 6*th.*—*Cont. quina.*

" 12*th.*—Continues to improve.

" 20*th.*—Says her eye is quite well.

"III.—*Iritis after fever—treated with quina, leeches, and vesication.*

"No. 13223.—*Aug. 26th*, 1843.—Catherine M'Donald, aged 55, has been labouring under the epidemic fever now prevalent. Right eye affected with iritis. Iris discoloured; pupil hazy; vision dim; nocturnal pain in eyeball, preventing sleep. Pulse 96, small.—*Belladon. ad palp. dextr.—Cap. sulph. quin. gr. ij 8vâ qq. horâ.*

"29*th*.—Pain not relieved.—*Hirud. vj ad palp. dextr.—Cap. ol. ricini* ℥*j.—Hodie omit. quina.*

"*Sept.* 1*st*.—Eye easier; vision clearer.

"8*th*.—*Vesicat. pone aur. dextr.*

"14*th*.—Much improved.

"IV.—*Ophthalmitis after fever—treated by venesection, leeches, calomel and opium, belladonna, vesication, and quina—muscæ volitantes left.*

"No. 13254.—*Sept. 7th*, 1843.—James Nairn, aged 18, had epidemic fever in July last. After twelve days, had a crisis, but relapsed after other four days, with shiverings, and pain in the bowels. Eleven days ago, symptoms of iritis affected right eye. Sclerotica injected; iris, naturally hazel, of a darker colour than that of opposite eye; pupil contracted and irregular; sight so dim that he cannot read the large letters on the Infirmary card. Supra-orbital pain, increased during the night, and preventing sleep. Has applied four leeches, without relief.—*Venesectio. Belladon. ad palp. dextr. Cup. pilulam cum subm. hydr. gr. ij, opii, gr. ss. 8vâ qq. horâ.*

"8*th.*—Pain relieved; pupil somewhat dilated; vision rather clearer.

"9*th.*—*Hirud. vj ad temp. dextr.*

"10*th.*—*Gutta sol. nitr. argent.* (*gr. x ad aq.* ʒ*i.*) *ad ocul. dextr. Vesicat. pone aur. dextr.*

"12*th.*—Eye easier; pupil more dilated.

"14*th.*—Much improved.

"17*th.*—Mouth begins to be affected; eye much better. —*Cap. pilulam indies tantum.*

"20*th.*—A musca volitans before right eye. In other respects better.

"25*th.*—*Omit. pil.*—*Cap. sulph. quin. gr. j ter indies.*

"*Oct.* 6*th.*—Eye free from inflammation; still complains of muscæ volitantes before right eye.

"24*th.*—Says that the vision of right eye is as clear as that of left. He is still troubled with muscæ volitantes.— *Omit. quina.*

"V.—*Epidemic fever—abortion—iritis—cured by belladonna, quina, and purgatives.*

"No. 13260.—*September* 9*th*, 1843. Mary Quin, aged 20, was seized with epidemic fever about a month ago. This was followed by an abortion in the fourth month. Eyes have been affected with slight rheumatic iritis for twelve days. Pulse 96. Bowels regular.—*Belladon. ad palpebras.* —*Cap. sulph. quin. gr. j octavâ qq. horâ.*

"11*th.*—Right pupil a little dilated, and vision of that eye somewhat clearer.—*Cap. pulv. jalap. comp.* ʒ*ss.*

"12*th.*—Right pupil more dilated.

"14*th.*—Inflammation abates.

"18*th.*—*Rep. pulv. purgans.*

"VI.—*Epidemic fever, followed by capsulitis of the crystalline and cornea.*

"No. 13263.—*Sept.* 10*th*, 1843. John Collins, aged 31, a travelling dealer in stoneware, had the epidemic fever about six weeks ago. Eight days ago, when travelling by railway, supposed some particles of coke to have got into his right eye. Conjunctiva and sclerotica of that eye very slightly injected; iris of a lighter colour than that of opposite eye; both irides greenish; makes no complaint of left eye, the vision of which is good; right pupil natural in size; its motions limited and slow; vision of right eye so dim that with difficulty he tells one finger from another with it, when held close before him; pupil appears slightly muddy, and on concentrating the light upon it with a convex lens, a reddish wreath appears on the anterior crystalline capsule, just within the verge of the pupil; says that for two nights, the pain was pretty severe in right eyeball. Pulse 84, small; tongue white.—*Belladon. ad palp. dextr.*—*Pulv. purg.* ℈*j.*

"11*th*.—Right pupil widely dilated; the red wreath is now situated half way between the centre and the circumference of the pupil; a number of minute spots visible on the internal surface of the cornea, especially towards its lower edge; vision considerably clearer.—*Cap. pil. hydrarg. j m. et v.*

"VII.—*Epidemic fever followed by ophthalmia of catarrho-rheumatic character, relieved by venesection, belladonna, purgatives, and calomel and opium.*

"No. 13282.—*September* 19*th*, 1843. Ann Morrison

aged 41, had epidemic fever in July, since when she has been constantly troubled with pain in left side of head. Left eye affected with ophthalmia of catarrho-rheumatic character. Pulse 72; tongue foul; bowels costive; no sleep, from the hemicrania. Applied four leeches with some relief.—*Belladon. ad palp. sinistr. Venesectio. Pulv. purg.* ℈*j.*

"20*th.*—Blood buffy; pain much relieved; pupil irregularly expanded.—*Cap. pil. cum subm. hydr. gr. ij, et opii gr. ss, m. et v.*

"21*st.*—Eye free from redness.

"23*d.*—*Cap. sulph. magnes.* ℥*j.*—*Hodie omit. pil.*

"VIII.—*Epidemic fever — premature labour — amaurosis and ophthalmia—cured by bleeding, mercury, blisters, and belladonna.*

"No. 13290.—*Sept.* 20*th*, 1843. Catherine Auld, aged 28, was seized with the prevailing fever two months ago. Relapsed, and had a premature confinement at the eighth month. Since her convalescence, sight of both eyes has become dim, and the right eye is inflamed.—*Hirud. vj ad temp. dextr.*

"21*st.*—Hemicrania on right side.—*Belladon. ad palpebras. Venesectio.—Cap. pil. cum subm. hydr. gr. ij, et opii gr. ss, m. et v.*

"22*d.*—Pain relieved. Right pupil irregularly dilated, being tagged to capsule at nasal edge.

"23*d.*—Pain increased.—*Rep. venesectio.*

"24*th.*—Pain relieved.—*Omit. pil.—Vesicat. pone aur. dextr.*

"26*th.*—*Cap. ol. ricin.* ℥*j.*

"27*th.*—*Hirud. vj ad temp. dextr.*

"29*th.*—Eye improves. Still complains of supra-ocular pain.—*Vesicat. ad temp. dextr.*

"*October* 2*d.*—*Cap. pil. j indies tantum.*

"15*th.*—No pain nor inflammation. A lace-work of muscæ volitantes before each eye, which, however, does not prevent her from reading small type.—*Cap. sulph. quinæ gr. j ter indies. Omit. pil.*

"IX.—*Epidemic fever—iritis—curea by combination of quina and calomel.*

"No. 13330.—*Oct.* 5*th*, 1843. Agnes Jeffray, aged 17, was seized with the prevailing fever six weeks ago. Being convalescent after a relapse, began to sew, which has brought on inflammation of right eye. Iris of a green colour; pupil contracted; vision dim.—*Belladon. ad palp. dextr.*—*R. sulph. quininæ*, *subm. hydr.*, *ana gr. xij*, *sac. alb.* ℈*j. M. et div. in pulv. xij. Cap. j octavâ qq. horâ.*

"6*th.*—Pupil widely dilated; eye easier.

"7*th.*—Eye free from inflammation.

"10*th.*—Continues to improve.

"X.—*Ophthalmia interna after fever—yields slowly and imperfectly to quina.*

"No. 13333.—*October* 8*th*, 1843. William Armour, aged 17, is a fortnight convalescent from epidemic fever; left iris presents a darker colour than natural; pupil rather hazy; sclerotica slightly injected; vision dim.—*Belladon. ad palp. sinistr.*—*Cap. sulph. quin. gr. j ter indies.*

" 10*th.*—*Cont. remedia.*

" 12*th.*—Has had more pain.—*Hirud. vj ad palp. sinistr.*

" 15*th.*—Still occasional attacks of pain ; vision improves. —*Cap. sulph. quin. gr. ij 8vâ qq. horâ.*

" 22*d.*—Pain entirely gone ; vision of left eye still very dim.—*Cont. bellad. et sulph. quin.*

" 27*th.*—Vision does not improve.—*Omit. sulph. quin.* —*Cap. pil. subm. hydr. gr. ij, et opii gr. ss, octavâ qq. horâ.*

" 29*th.*—Vision clearer, but still so imperfect that he cannot with left eye make out characters an inch long ; iris of a greenish hue, and bolstered forwards towards cornea ; eyeball preternaturally flexible.—*Abrad. latus. cap. sinistr. et appl. vesicat. pone aurem.—Cont. belladon. et pilulæ.*

" XI.—*Ophthalmia interna after fever—passes from right to left eye—yields slowly to depletion, mercury, quina, belladonna, and vesication.*

" No. 13339.—*October* 11*th*, 1843. Grace Arnott, aged 15, is two months convalescent from epidemic fever ; about ten days ago, right eye became inflamed ; sclerotica intensely injected ; iris of a dull green colour ; pupil of natural size, moveable, but very hazy ; vision so dim, that with right eye she merely perceives light and shade ; pulsatory pain in eyeball ; no circumorbital pain ; pulse 84 ; occasional rigors ; has been working in a cotton mill, and in a high temperature. — *Hirud. vj circum oculum dextr.—Cap. pilulam cum subm. hydr. gr. ij, et opii gr. ss, octavâ qq. horâ.*

" 12*th.*—*Belladon. ad palp. dextr.—Abrad. latus dextr. capit. et applic. vesicat.*

" 13*th.*—*Venesectio.*

"14*th*.—Blood not buffy; pain not relieved; pupil irregularly dilated.—*Cap. sulph. quin. gr. iij, octavâ qq. hora.* —*Cont. pil.*

"15*th*.—Bowels bound.—*Cap. quamprimum sulph. magn.* ℥*j*.—*Cont. quin. et pil.*

"16*th*.—Pain less; vision clearing; four or five stools, from the salts; pupil somewhat dilated, irregular, rather clearer.

"17*th*.—More pain and lacrymation during the night; vision continues rather clearer.—*Omit. pil.*

"18*th*.—*Rep. hirud.*

"19*th*.—*Vesicat. ad temp. dextr.*

"20*th*.—Mouth sore.

"21*st*.—Through the night, left eye became affected with pain and redness; vision of it somewhat dim; right eye improves; had rigors during the night, when the pain shifted from the right to the left temple.

"22*d*.—Left pupil widely dilated; right eye improves. —*Belladon. ad palp. dextr. tantum.*

"23*d*.—Appearance of right eye greatly better.

"24*th*.—Left eye more affected, being red and painful. *Hirud. vj circum oculum sinistr.*

"25*th*.—Pain of left eye relieved by the leeching; right eye free from redness; iris more of its natural colour; pupil irregularly dilated, presenting two tags to capsule at its upper edge.—*Cont. sulph. quin. et belladon.*

"26*th*.—Both pupils widely dilated; right still irregular; vision of right eye still very dim; no pain; no rigors.

"29*th*.—Eyes free from redness and pain; vision of right eye so dim that she cannot make out letters an inch long; with left eye reads the smallest type on infirmary card; right pupil still a little irregular; left cornea preternaturally

flexible ; mouth well.—*R. subm. hydr. gr. xij, sulph. quin. gr. xxiv. M. et div. in pulv. xij. Cap. j octavâ qq. horâ. —Cont. belladon.—Omit. alia.*

" XII.—*Epidemic fever ; three relapses, followed by amaurosis and ophthalmitis ; symptoms yield to quina, leeches, and mercury.*

" No. 13346.—16*th* *October*, 1843. John Harvey, weaver, aged 44, had epidemic fever twelve weeks ago ; had three relapses ; found vision of left eye to become dim about a fortnight ago ; it is now so deficient that he merely perceives light and shade with it ; four days ago the eye began to get red ; sclerotica much injected ; a narrow whitish ring between sclerotica and cornea ; cornea rather hazy ; iris greenish ; pupil contracted, irregular, and very hazy ; supra-ocular pain increased during the night, and at times preceded by rigors ; much lacrymation ; muscæ volitantes ; pulse 72 ; bowels regular ; thinks the affection of his eye arose from his going into his cold shop to work.—*Belladon. ad palp. sinistr.—Cap. sulph. quin. gr. iij, octavâ qq. horâ.*

" 17*th*.—Eye easier ; less lacrymation.

" 18*th*.—Vision rather clear.—*Vesicat. pone aur. sinistr.*

" 19*th*.—Symptoms abate.

" 21*st*. — Supra-orbital pain still considerable ; vision clearer.—*Hirud. vj ad palp. sinistr.*

" 23*d*.—Pain somewhat abated since the leeching ; pupil still contracted, and vision dim.—*Vesicat. parv. ad part. frontis dolent.*

" 25*th*.—Pain relieved ; eye remains in much the same state.—*Cap. pil. subm. hydr. gr. ij, et opii gr. ss, octavâ qq. horâ.—Omit. quin. Cont. belladon.*

"30*th*.—Eye improves; with some difficulty makes out letters an inch long; mouth sore.—*Cap. pilulam indies tantum.*

"XIII.—*Ophthalmitis after fever; being neglected, ends in synechia posterior, and almost total loss of sight; slow improvement under the use of quina and calomel.*

"No. 13355.—18*th October*, 1843. Bridget Carey, aged 50, had epidemic fever four months ago; three months ago, sight began to fail; both pupils are irregular, and the lenses very hazy; vision, especially of the left eye, nearly limited to a perception of light and shade; gropes like an amaurotic, and has a most melancholy expression; to relieve the burning heat of eyes, poulticed them for two months; this has produced entropium of each lower eyelid; pain in the temples, especially during the night; tongue clean; bowels bound; back of pharynx ulcerated; says the throat has been sore since before taking the fever; has used only purgatives, such as salts and castor oil.—*Belladon. ad palpebras.—Vesicat. ad tempora.—R. subm. hydr., sulph. quin., ana gr. xxiv. M. et div. in pulv. xij. Cap. j octavâ qq. horâ.*

"19*th*.—Pain in head somewhat less; bowels griped; a stripe of court-plaster applied across each lower lid.

"20*th*.—Complains much of pain in left side of head.

"21*st*.—Entropium less troublesome.

"23*d*.—Mouth sore; pain subsiding; vision appears to be stationary.—*Omit. subm. hydr. Cont. quina.*

"24*th*.—*Gargarism. alumin.—Cap. h. s. pulv. Dover. gr. xij.*

"25*th*.—Bowels loose.—*Cap. ol. ricin. ℥j. Cont. quin. et pulv. Dover.*

"26*th*.—A good night; pain of head much less; there appears to be no improvement in the eyes.

"28*th*.—Right pupil irregularly dilated; distinguishes a pen and other objects with right eye, being the first sign of improvement in vision since her admission.—*Cont. bellad. quin. et pulv. dover.*

"29*th*.—Is much less troubled with the entropium; both pupils very irregular, presenting numerous adhesions to capsules; appears to have merely perception of light and shade with left eye; vision of right eye improves; still complains of pain in left side of head.—*Abrad. latus cap. sinistr. et appl. vesicat. ad partem dolentem.—Cont. alia.*

"30*th*.—Pain relieved by the blister.

"XIV.—*Remittent fever, followed by ophthalmitis, cured by belladonna, purging, leeches, and mercury.*

"No. 13375.—25*th October*, 1843. Jane M'Naught, aged 13, was seized with remittent fever five weeks ago; for eight days past the left eye has been inflamed; pupils irregular; vision dim; nocturnal pain; bowels bound. —*Belladon. ad palp. sinistr.—Pulv. purg. gr. xv.*

"26*th*.—Three stools from the powder; no sleep on account of the pain.—*Cap. pulv. Dover. gr. viij h. s.*

"27*th*.—A rather better night; sclerotica very vascular. —*Hirud. vj ad palp. sinistr.—Cap. pil. cum subm. hydr. gr. ij, et opii gr. ss, mane et vespere.*

"28*th*.—Eye easier; no pain in the head; a good night; sclerotica less injected; pupil pretty clear; vision more distinct; bowels regular.—*Cont. belladon. et pilul.—Vesicat. pone aur. sinistr.*

"30*th*.—Pupil widely dilated.—*Ablue belladon.*

"*Nov.* 1*st*.—Continues to improve.

"XV.—*Severe ophthalmitis after remittent fever relievea by venesection and mercury.*

"No. 13378.—28*th October*, 1843. Hugh Leech, aged 26, was seized with remittent fever about eight weeks ago. First attack lasted about ten days; the remission, three days; and the second attack seven days. During his convalescence was sleeping in a very uncomfortable place, and was much exposed to cold. On the morning of the 25th, awoke with great pain in right eye. The sclerotica is intensely red, the iris has assumed a green colour, the cornea is slightly hazy, and the pupil very much so; it is considerably contracted, and the vision of the eye is limited to a perception of light and shade; pulse 108; tongue white. Underwent no treatment for the fever.—*Belladon. ad palp. dextr. Venesectio. —Cap. pulv. subm. hydr. gr. ij, et opii gr. ss, octavâ qq. horâ.*

"29*th*.—Blood somewhat buffy; felt relieved by the bleeding; pulse 84; sclerotica not so red; pupil not so hazy; vision clearer.—*Abrad. latus capit. dextr. et appl. vesicat. pone aurem.*

"30*th*.—Blisters have been applied behind both ears.

"*Nov.* 1*st*.—Mouth sore. Can read the numbers on the tickets, which are about an inch long.—*Cap. pulv. vesp. tantum h. s. cap. pulv. Dover. gr. viij.*

"XVI.—*Remittent fever—abortion—ophthalmitis relieved by leeching and mercury.*

"No. 13379.—28*th October*, 1843. Flora Reynolds, aged 22, was seized with epidemic fever six weeks ago. Says the attack lasted two weeks, and that she had no relapse. Five weeks ago, had a miscarriage at the third month, with discharge. Menstruated a week ago, and more profusely than usual. Says her feet and legs became dropsical during her convalescence. Was sleeping in an apartment with broken windows, and ten days ago, was attacked with pain in left eye, which now presents the usual symptoms of ophthalmitis post febrem, the sclerotica being injected, the iris discoloured, and vision very dim. No sleep, from hemicrania; pulse 84; tongue clean; bowels regular.—*Hirud. vj ad palp. dextr.—R. subm. hydr. gr. v; pulv. dover. gr. xij. M. ft. pulv. h. s. sumend. cras mane, sulph. magnes. j.*

"30*th*.—Pain almost gone. Vision clearer.—*Belladon. ad palp. sinistr.—Cap. pil. subm. hydr. gr. ij, et opii gr. ss, octavâ q. q. horâ.*

"Remarks.—The cases above related may serve to give an idea of the affection of the eyes, which has in so many instances followed the fever now prevailing, and of the treatment which I have employed for it. I have generally called the disease *ophthalmia post febrem*, but perhaps, the appellation of *ophthalmitis post-febrilis* is more correct.

"*Statistics.*—The following are a few statistical facts, which may be worthy of notice:

"Out of the 36 cases which I treated in August, Sep-

tember, and October, 27 occurred in females, and only 9 in males.

"The following were the ages of the 36 patients: below ten, 2; from ten to twenty, 17; from twenty to thirty, 9; from thirty to forty, 2; from forty to fifty, 3; from fifty to sixty, 3.

"In 18 of the cases, the right eye only was affected; in 10, the left only; and in 8, both eyes, either together or consecutively.

"The attack of ophthalmitis occurred at various periods from three to sixteen weeks from the commencement of the fever. In several cases it came on about two weeks after convalescence from the relapse, but generally somewhat later.

"The very same disease of the eye occurred after the Dublin epidemic of 1826, and was described by Mr. Hewson,[1] Dr. Reid,[2] Dr. Jacob,[3] and Mr. Wallace.[4] The last-mentioned author has remarked the greater liability of the right eye to be affected than the left. 'Of forty cases,' says he, 'which I have noted, there were only four who had the disease in the left eye, and only two had it in both.' Out of the ten cases in which it happened to me to observe it in the left eye, seven were females. The attack is generally traced to a draught of cold air during the night; it is probably the eye which is exposed which becomes affected, while that belonging to the side on which the patient rests, escapes.

---

[1] Observations on the History and Treatment of the Ophthalmia accompanying the Secondary Forms of Lues Venerea, pp. 34, 109. London, 1814.

[2] Transactions of the Association, &c., vol. v, p. 294.

[3] Ibid., p. 468.

[4] Medico-Chirurgical Transactions, vol. xiv, p. 286. London, 1828.

"Dr. Jacob has remarked that the disease occurs much more frequently in young than in old persons. Of thirty cases in which he noted the ages, three only were above 25. He also met with it more frequently in females than males. In the majority of the cases seen by him, the inflammation made its appearance within six weeks or two months after recovery from the fever; in some instances, however, it appeared before the patients left the hospital, and in others, not for four, five, or even eight months.

"*Symptoms.*—The character of the disease appears to be, in the first instance, that of congestion, followed by inflammation of the internal parts of the eye, and especially of the retina, producing great imperfection of sight. This is succeeded by evident inflammation of the iris and sclerotica; the disease extends to the capsule of the lens, and sometimes to the lining membrane of the cornea; there can be little doubt but that the choroid is also inflamed; while the conjunctiva remains in general but slightly affected.

"The part which the sclerotica takes in the disease is plain enough, from the intense injection of the blood-vessels which lie on its surface, and which, derived from the muscular and anterior ciliary arteries, are seen running in radii towards the cornea. The change of colour in the iris, the contracted state of the pupil, and the tags of adhesion between the edge of the pupil and the capsule of the lens, show the part which the iris takes in the disease. The internal membrane of the cornea, and the anterior crystalline capsule, especially the latter, are extremely muddy, showing their participation in the inflammation. The entire walls of the aqueous cell seem, in some cases, as if coated with a thin layer of lymph, of a yellowish-green colour. The great deficiency of sight is not explicable from the mere muddi-

ness of these parts, and is, besides, often the earliest symptom of the disease, showing an affection of the retina. At an early period, the pupil is sometimes dilated, and does not become contracted till the inflammation embraces the iris. If not promptly combated by the appropriate remedies, the cornea and sclerotica become preternaturally flexible under the pressure of the finger, showing that the disease has extended to the vitreous body. In one case, I found the cornea very flexible in the amaurotic stage before there was any appearance of inflammation.

"At the commencement, it is possible that only the central artery of the retina, and the vasa longa of the hyaloid, may be affected. The irritation and injection speedily spread, in all likelihood, to the short, as well as to the long ciliaries; to the vessels of the ciliary processes, and of the zonula Zinnii; to the vasa brevia of the hyaloid, the vessels of the anterior crystalline capsule, and those of the lining membrane of the cornea; and to the sclerotic network.

"The lacrymation is very considerable, and seems to be connected, not so much with the state of the conjunctiva, as with the pain in the interior of the eyeball. The severe pain in and round the eye, aggravated during the night, is exactly similar to what attends rheumatic and syphilitic ophthalmia, and may partly be ascribed to the pressure exercised upon the ciliary nerves within the eye, by the inflamed parts, partly regarded as a direct neuralgic affection, such as we often meet with in the six branches of the fifth nerve which emerge from the orbit, when there is no evident inflammation present. It is, in general, only after the iris and sclerotica have taken part in the disease, that the patient complains of the ocular and circum-orbital pain. So long as

the disease is confined to the retina there is little or no pain. Hence the patient is less alarmed than he should be, by the mere dimness of sight, which, indeed, from only one eye being generally affected, may scarcely attract his attention. Even photopsia, in the early stage, is not complained of; in the last stage, muscæ volitantes form a constant symptom.

"Although, in by far the greater number of cases, all the textures of the eye suffer in this disease, on which account it may be designated as an *ophthalmitis*, it sometimes happens that the inflammation is confined to one or two textures only. Thus in Case 6, the anterior crystalline capsule and the lining membrane of the cornea only were visibly affected with inflammation.

"The pulse varies from 84 to 120. Frequently rigors occur. The tongue is generally clean and moist. The pain entirely prevents sleep.

"*Diagnosis.*—The present disease is much more extensive, in respect to the number of textures affected, and much more intense, in so far as the morbid action which is at work is concerned, than rheumatic ophthalmia, or rheumatic iritis; to which, however, in many particulars, it bears a resemblance. Yet, along with postfebrile ophthalmitis, we have neither the bounding pulse, the hot skin, nor the white and loaded tongue, which attend inflammation of the sclerotica and iris from mere exposure to cold. Neither is the blood drawn from a vein so buffy. The pain is not less distressing. Vision is much sooner and much more seriously involved.

"Mr. Wallace considers this affection of the eye as bearing so very striking a resemblance to syphilitic ophthalmia, that the one cannot be distinguished from the other without particular attention to the history of the case. The

absence of the tawny-reddish border which surrounds the pupillary margin of the iris, and there being tubercles on the iris in postfebrile ophthalmitis, will serve to distinguish the two diseases.

"The acuteness of the present disease will discriminate it from scrofulous iritis, to which, particularly in the appearance of the lens, it bears considerable resemblance, as well as in the degree in which the retina is affected.

"In some instances, postfebrile ophthalmitis bears a considerable resemblance to catarrho-rheumatic ophthalmitis. Onyx, so frequent in the latter disease, I have not witnessed in the former. In one case I observed a considerable portion of the conjunctiva corneæ ulcerated, but never the ulcer which affects the proper substance of the cornea, and which is so characteristic of the catarrho-rheumatic disease.

"The disease to which postfebrile ophthalmitis bears the nearest resemblance is sympathetic ophthalmitis, which results so frequently from incised and lacerated wounds of the edge of the cornea and sclerotica, and consequently of the annulus albidus of the opposite eye. The cause of the similarity is, that in both cases the inflammation commences in the retina, advances to the iris, embraces all the internal textures of the eyeball, and ends, if neglected, in closure of the pupil, opacity of the crystalline, softening of the globe, and insensibility to light. The slightest inquiry into the history of the case will in either instance elucidate the origin of the affection.

"*Stages.*—Mr. Wallace has described this disease as presenting two stages—the first amaurotic, and the second inflammatory. The cases above detailed sufficiently illustrate the accuracy of Dr. Wallace's description. 'During the first stage,' says he, 'there exist amaurotic symptoms

alone; and in the second stage, to the amaurotic symptoms are superadded the symptoms of inflammation. The length of time that the amaurotic symptoms exist before the occurrence of external redness, or of the visible symptoms of inflammation, is extremely uncertain, as also the period after fever at which the amaurotic symptoms commence. On many occasions the amaurotic symptoms, particularly a slight dimness of vision, with muscæ volitantes, have commenced at or even before the time of convalescence from fever, and yet the inflammatory stage has not supervened for weeks or even months; while on other occasions the dimness of vision has not commenced for several days, weeks, or even months, after the febrile attack, and has then been immediately followed by the symptoms of inflammation. It is to be particularly observed that I have never seen a case in which, upon strict inquiry, amaurotic symptoms, more or less strongly marked, have not preceded the inflammatory symptoms. This is, in fact, one of the most remarkable characters of the disease. It is also to be noticed that a similar distinction of symptoms is observable during amendment, for it uniformly happens that the inflammatory symptoms subside a longer or shorter time before the amaurotic symptoms disappear, and often before they are diminished in severity.'

"The first and second cases which I have related, bore, not merely at the commencement, but all along, much more the aspect of amaurosis than of ophthalmitis. In one case which I saw, the patient was suddenly struck blind of the affected eye. In another case, already referred to, along with amaurotic symptoms, the cornea had become flexible; and no longer apprehensive of inflammation supervening, I had commenced the use of quina and blisters, when suddenly

pain and redness set in. I have met with several cases in which, for days, the principal symptoms have been pain in and round the eye and dimness of sight. In other cases, there has been redness of the eye from the very commencement.

"*Predisposing and exciting causes.*—That an opportunity is left for the disease of the eye by the fever is plain; there may even be grounds for suspecting that the fever may have left the circulating fluids in an altered state, favourable for the production of the local complaint. However this may be, the affection of the eye is generally traceable to some exciting cause, and especially to cold. Sleeping in an apartment with broken windows, working in a cold damp shop, and washing the head with cold water, are mentioned in the cases as exciting causes. Using the eyes too early in sewing is another.

"PROGNOSIS. The recovery is tedious. In the majority of cases two months of uninterrupted and careful treatment have been necessary to effect a cure. That the disease, without any treatment, will wear itself out, is true; but the eyes will be left, as in Case XIII, useless, from the contracted and adherent state of the pupil, and the amaurotic condition of the retina. If trifled with, the cure will be imperfect; synechia posterior, muscæ volitantes, and other irremediable sequelæ, remaining. If taken early, and treated vigorously, a complete cure may be prognosticated. Recovery is much more speedy and complete in young subjects: in adults it is more tedious.

"TREATMENT. 1. *Depletion.*—The wan appearance of many of the patients, the smallness of their pulse, and the state of general debility in which they are, might tend to deter from the use of the lancet. I am satisfied, however,

that we can rarely, with safety, dispense with this remedy. The blood, drawn from a vein, is only in a few cases buffy. Often it is difficult, from syncope coming on, to obtain more than a few ounces from the arm. When this is the case, leeches to the temples, and round the eyes must be had recourse to.

"If depletion is neglected, the recovery is very slow and uncertain: adhesions form, and cannot be got rid of, and vision continues imperfect. We must not be regulated by the pain alone in taking away blood. Nothing relieves the pain so strikingly and effectively as venesection; but the state of the eye, independently of the pain, demands the taking away of blood. We should not even wait for the inflammatory stage of the disease, but relieve the congestion on which the amaurotic symptoms depend, by the employment of depletion.

"Some cases, especially in children, I have trusted to leeching; but in adults, venesection is almost always necessary. I have not used arteriotomy, nor cupping, but have no doubt of their efficacy.

"2. *Purgatives.*—The tongue being generally clean, and the bowels regular, there seems to be little demand for purgatives. At the same time, I have found them of considerable use in the course of the treatment. Sulphate of magnesia, castor oil, and compound powder of jalap, are those I have most employed.

"3. *Mercury.*—I am decidedly of opinion that the safest and the most effectual plan of cure embraces the use of calomel with opium, exactly as in the treatment of rheumatic or syphilitic iritis. This view of the matter is confirmed by the testimony of Mr. Hewson, who seems to have trusted to opening the temporal artery and giving a dose of

three grains of calomel with half a grain of opium each night. Dr. Jacob, also, found the use of mercury so certain and decisive in this affection of the eye, that he trusted to it almost exclusively. He gave two grains of calomel, and a quarter of a grain of opium thrice a day. The mouth should be made sore, but not too suddenly, lest we be obliged to omit the medicine prematurely.

"4. *Belladonna.*—The dilatation of the pupil is an essential part of the treatment. This is to be effected by liberally smearing the eyelids and eyebrow with the moistened extract of belladonna morning and evening—directing the patient to renew its activity from time to time, by re-moistening it with his finger dipped in water.

"5. *Counter-irritation.*—Considerable benefit is derived from blisters to the temples and behind the ears, after due employment of depletion. They aid in removing the pain, lessening the inflammation, and recalling the power of vision.

"6. *Cinchona.*—Mr. Wallace has keenly advocated the supremacy of cinchona as a cure for this affection of the eye. He thinks it has a specific influence over the disease; recommends it both when the patient is weak and seems to demand tonics, and when he is in full health; maintains the incurability of the disease by mercury; and is decidedly of opinion, that there must exist some source of error in Mr. Hewson's account of the cases cured by this medicine. 'When I commenced the use of bark in this disease,' says Mr. Wallace, 'I did not venture to employ it when the inflammatory symptoms were very severe, without preceding its administration by bleeding and purging. But latterly, whenever a case has presented itself, I have prescribed the bark alone, or simply with such medicines as were suited to

the regulation of the bowels; and with the most decidedly good effects. Indeed, I have thought, that the abstraction of blood has, on some occasions, considerably retarded the cure; yet cases may occur in which bleeding and purging will be necessary.'

"I have not employed cinchona bark in powder, but the trials I have made of sulphate of quina have not led me to adopt any very high opinion of its efficacy in this disease. Some of the milder cases have yielded, in a great measure, to the combination of calomel and quina, such as Case 9. Case 5 was much benefited by quina. In Case 10 it acted very slowly and imperfectly. On the whole, I feel indisposed to trust to this remedy; and on this point I find my views corroborated by the experience of Dr. Jacob. 'In two cases which I met with,' says he, 'after the inflammation had subsided, and in which vision was as much impaired as if no remedies had been adopted, bark, in powder, had been administered for ten days. I gave trial to the sulphate of quinine myself in four well-marked cases for eight days, but finding no relief, had recourse to mercury, which effected a cure in the usual time.'

"I shall not unnecessarily extend this report, by commenting on the advantages to be derived from regulating the diet of the patient in this disease, and protecting him from cold; on the utility of warm fomentations, and anodyne frictions; nor on the problematical effects of such internal remedies as tartar emetic, colchicum, or turpentine, which I have not tried."—*Medical Gazette*, 24*th November*, 1843.

2. *Glandular swellings.*

Glandular swellings have not occurred frequently among my convalescent patients—not at least when under my observation. I can only find notices of enlargement of the superficial inguinal glands of the left side in a boy—of the submaxillary glands in a man and a girl—of the right parotid and superjacent lymphatic glands, which went on to suppuration, in a man—and ended, as in the case of the old woman Janet Baillie, in an immense abscess.

3. *Boils and Pustular Eruption.*

Boils have occurred in a few cases during convalescence; but they never constituted a serious complication, except in one old woman in whom they considerably retarded convalescence.

Pustular eruptions have appeared around the mouth in a few patients. This has generally occurred immediately after or simultaneously with the crisis.

4. *Effusion into the knee-joint.*

I have seen three cases of effusion into the knee-joint. All the patients affected in this way had suffered, in recovering from the relapse, from pain in the knee—a very common occurrence. In two of the cases, I find no report of the treatment adopted, but I presume that it was similar to what I adopted the other day in the third case, in the Royal Infirmary:—viz., a blister dressed with iodine ointment, and the use of the hydriodate of potash internally.

5. *Swelled legs and ankles*

Are very common occurrences, especially when the diet has not been sufficiently liberal, after the cessation of the

febrile symptoms. Bandages, good food, and tonics generally remove the swelling in a few days.

6. *Pain in the feet, with, and without swelling,*

Has been complained of by several female patients. Mrs. Finney had acute pain in the feet unattended by swelling. It came on some days after recovery, and continued after she had ceased to be a patient, and was discharging laborious duties as a nurse in the male wards of the New Fever Hospital. Others had severe pain in the feet, with swelling of them and the ankles.

7. *Paralysis of the deltoid, and other muscles*

Has been noticed in a few cases. In a female patient, aged 36, loss of power in both deltoids continued for about ten days after restoration to health in every other respect had taken place.

8. *Sloughing of parts*

Has been observed only twice. It existed to some extent in the areolar tissue in the neighbourhood of the parotid abscess in Janet Baillie. In Mrs. M'Kay, aged 55, there was sloughing of the pudenda and of the soft parts covering the sacrum. She had a very tedious convalescence.

CHAPTER V.

TREATMENT OF THE DISEASE.

From all that I have seen and read of the epidemic fevers of our own and other climates, I concur with those physicians who regard these diseases as produced by certain poisons, the deleterious effects of which have an inherent tendency to pass off after having caused a definite train of symptoms. It is this which explains the large proportion of recoveries from fever in the young, and in those of sound constitution, under quite different or even opposite methods of treatment. A knowledge of this fact ought to teach the practitioner that his duty is to watch anxiously, and be *ever ready*, but *never hasty*, to institute active interference. "Our object must be," as Dr. Thomas Watson [now Sir Thomas Watson, Baronet,] remarks, "when the fever is once established, to conduct it to a favourable close—to 'obviate the tendency to death.' Upon this point, I agree most entirely with Pitcairn, who being asked what he thought of a certain treatise on fevers, declared—'I do not like fever-curers. You may *guide* a fever; you cannot *cure* it. What would you think of a pilot who attempted to quell a storm?—either position is equally absurd. In the storm you steer the ship as well as

you can, and in a fever, you can only employ patience and judicious measures to meet the difficulties of the case.' "[1]

Each individual case, as well as each epidemic, possesses certain peculiarities, requiring different kinds of treatment; and the only general rule which can be safely followed by the practitioner, is that so correctly laid down by Cullen, and so urgently insisted on by Dr. Alison, viz., "*to obviate the tendency to death; i. e.* to oppose those of the series of morbid changes occurring during the disease, by which the fatal event in any individual case appears likely to be brought about."[2]

The great practical question, then, which we have to consider in reference to the prevailing epidemic, is, in what manner does death take place, and how can the tendency to it be best obviated?

At an early period of my experience, I became convinced that there were three states most apt, separately or conjointly, to cause death, and which, therefore, ought to be anxiously looked for, and promptly dealt with. They are

1st, Congestion of the mucous membrane of the stomach and intestines, terminating in effusion of blood, and subsequent destruction of large portions of this tissue.

2d, Congestion of one or more of the abdominal viscera, particularly of the liver and kidneys, disabling them from the performance of their secretive functions, thereby causing bodies to circulate with the blood, which ought to be

---

[1] WATSON (Thomas):—Lectures on the Principles and Practice of Physic. 2d volume, p. 710. London, 1843.

[2] ALISON (William P.):—Outlines of Pathology and Practice of Medicine: p. 449. Edinburgh, 1843.

separated from it, and which bodies we know act as poisons when not so eliminated from, or when directly introduced into the circulation.

3d, Debility and sinking.

After practically considering these three states, I propose to speak of the measures to be adopted to prevent or modify relapses.

The best means by which to prevent visceral congestion are the cautious but steady use of purgatives, the determination of blood to the surface and extremities and in some cases its abstraction. When the kidneys are not performing their functions, a small bleeding from the lumbar region by cupping, or even a dry cupping in those in whom depletion would be hazardous, proves of signal benefit. Of course, when there is debility and a risk of sinking, cordials and stimulants must be administered ; and if, together with this, which is no uncommon case, there be nausea or vomiting, special sedatives must be given.

These general statements form a sufficient introduction to some remarks on the various therapeutic agencies which are believed to be appropriate.

a. Abstraction of Blood.

This powerful method of interference for good or for evil, most naturally first claims our attention, as to it, have been ascribed numerous and great advantages. Several medical friends who have visited the hospital have urged me to practise it, both generally and topically, from the success which they imagined had attended it in many cases. I have been told, for instance, and very confidently, that patients bled in an early stage of the fever had always a short and mild attack, seldom relapsed, seldom became yellow,

and rarely suffered, except to a very small extent, from muscular and articular pains. Though I certainly did not expect to reap these advantages from the abstraction of blood, yet, observing that the fever was attended in its commencement by much arterial excitement and congestion, it appeared to me both reasonable and justifiable to make some experiments upon the effects of venesection in suitable cases. In most, if not in all the instances, the headache was either relieved or entirely removed for a short time, and the hard and frequent pulse was rendered softer and slower. These beneficial changes were often, however, not effects, though sequences of the bleeding. This was satisfactorily proved by the very same changes frequently occurring as suddenly and unequivocally in patients in the same wards, and affected in the same way, *who were subjected to no treatment whatever*.

The blood was drawn from the patient when sitting up, and allowed to flow till he either expressed himself as suffering less, or till he gave indications of approaching syncope. Few bore the loss of more than ten ounces, and several became affected with vertigo and faintness after two or three ounces only had flowed. Some persons who whilst the blood was flowing declared themselves quite relieved from the headache, were found to be suffering just as much as ever within half an hour after the arm was bound up. In fact, the severest headaches often ceased spontaneously, and were always far more effectually and uniformly relieved by the combined operation of a purgative, a pediluvium, and the constant application of cold to the head and to the back of the neck.

In two of the cases referred to, delirium, intense general pains, and great debility, occurred in the relapse: and in one

of them—the case of Dallas—yellowness appeared in the relapse and not in the first attack. Both these persons were bled by Dr. Heude, during my absence for some days in the country, so that I did not witness the first effects, which were favourable. When I returned, they had almost recovered from the first attack of the fever, and did not then seem to be in a worse state than others who were treated in the usual way.

If ever there was a case in which the pulse, the general appearance, youth, and robust strength of the patient, indicated the propriety of bleeding in this disease, it was in that of John Ritson, admitted in the fifth day of the fever. I subjoin the history of his case.

CASE XXVI.—SUMMARY.—*Severe headache and articular pains. Relapse on the 14th day. Treatment: quinine in large doses.*

John Ritson, a strong sailor, native of Sunderland, aged 19, of sanguine temperament, fair, florid, much sun-burnt, with light hair and eyes—who has been on board of ship, at Leith, for the last four weeks, since his return from Nova Scotia, was

Admitted, 20th September (fifth day.)—He states that he is generally pretty sober and has been quite so of late: that his health has always been good: that he has had full, but easy employment, and the enjoyment of every comfort since his arrival in port.

On the morning of the 17th, he was seized with headache, and burning heat of skin, followed by sweating, after which, he had rigors. For the last two days he has had pain in the joints. Last night he began to experience great uneasiness

of the epigastrium accompanied by vomiting. He is not aware of having been exposed to contagion.

His face is intensely flushed. His expression of countenance is rather contracted and slightly anxious. The pulse is 108, and of good strength. The tongue is coated with a white creamy fur. He has much thirst. The last stool which he had was yesterday, from medicine previously taken. The skin is soft and tolerably cool. His sleep at night is little, and disturbed. The intellect is clear. He complains of severe headache, pains in the joints, and much feebleness in the limbs. There is a good deal of pain at the epigastrium; and increased dulness in the region of the spleen, which organ, however, cannot be felt below the ribs. During the writing of this report, he has become very cold, and has at present (5 P.M.) some rigors.

Habeat statim enema purgans.

Habeat pilulas colocynthidis compositas ij nocte.

Abradatur capillitium, et applicetur assiduè aqua frigida toti capiti.

21*st September* (*sixth day.*)—The symptoms are much the same as they were yesterday, excepting that the headache has rather increased since a fit of vomiting which he had about midnight: after the vomiting the pain at the epigastrium was considerably relieved, but it still continues to a certain extent. The bowels were freely opened by the enema. The hair has been cut; but cold water has not been applied, though it was prescribed yesterday. The pulse is 104, and of moderate strength. He has great thirst. The urine is abundant.

Applicetur aqua frigida toti capiti.

Habeat statim ex aqua sulphatis zinci gr. xij.

Habeat pediluvium calidum horâ somni.

22*d September* (*seventh day.*)—He is rather better than

yesterday. The prescription was followed out. The emetic operated freely. There has also been considerable evacuation from the bowels. He slept well after the bathing of the feet in warm water. The pulse is 104, of the same strength as yesterday. The thirst continues. The tongue is cleaning and is moist. The countenance has lost a good deal of the intensity of the red flushing and is beginning to assume the bronzed aspect.

Continuetur aqua frigida capiti.

23*d September* (*eighth day.*)—The headache is relieved. The pulse is 70. The bowels are open. He is going on well in all respects.

Quiescat.

24*th September* (*ninth day.*)—The pulse is 64, and small. The bronzing has become more characteristic. Some general abdominal pain is complained of. An excessively faint dark stripe extends from the umbilicus to the pubes. There is much general pain over the whole body.

Habeat olei ricini ℥iss statim.

Habeat haustum cum solutionis muriatis morphiæ ℥ss horâ somni.

25*th September* (*tenth day.*)—He had the morphiated draught, and has slept well. The bowels are open.

Quiescat.

28*th September* (*thirteenth day.*)—On the 26th he was ordered pills each containing 3 grains of sulphate of quinine —to take six of them during each 24 hours. He appears to be quite well, and makes no complaint. He is allowed to rise. He has taken twenty-three of the pills.

29*th September* (*fourteenth day.*)—He is in every respect quite well. He has a great appetite.

Habeat victum plenum: et xx cerevisiæ quotidie.

30th September (*fifteenth day.*)—About 10 A.M., he was seized with violent headache. There has been some return of the general pains and slight rigors.

Habeat victum tenuem.

Applicetur aqua frigida capiti.

Intermittantur pilulæ quiniæ.

1st October (*sixteenth day.*)—The skin is very hot. He has not sweated since the relapse. The pulse is 108, and of moderate strength. There is some general uneasiness in the abdomen: this uneasiness is not increased by the descent of the diaphragm which descends easily. The bowels are confined.

Continuetur aqua frigida capiti.

Habeat pulveris jalapæ compositi ʒiss statim.

2d October (*seventeenth day.*)—He did not sleep last night. He has had no sweating. He feels sick, and is worse than yesterday. The headache has increased. There are no general pains but a feeling of debility. The pulse is 132, full, and not hard. The skin is dry and hot, but soft. The bowels were only once opened by the jalap. The tongue is white and moist. He has much thirst.

Habeat enema purgans.

Habeat haustum c. tincturæ hyoscyami ʒi horâ somni.

3d October (*eighteenth day.*)—He slept a little in the first part of the night: he was awakened by a fit of rigors. The skin is soft with some tendency to moisture. The pulse is 120, sharp, and tremulous at times. He has had a good deal of nausea with some vomiting. There is double vision this forenoon. The countenance is pale and exhibits unequivocal bronzing.

Habeat pulveris opii, gr. ij; confectionis rosarum q. s. ut ft. pil. ij. Habeat j statim, et alteram horâ somni.

4th October (*nineteenth day.*)—He sweated much immediately after the visit yesterday, and continued to sweat till about 4 o'clock this morning, when his shirt was changed. He has had the two opium pills; but has not slept. The bowels were opened to-day. The tongue is coated with a white fur. The pulse is 84, soft, and of good strength.

6th October (*twenty-first day.*)—The bowels were opened by medicine. He is going on well and makes no complaint.

7th October (*twenty-second day.*)—He seems quite well to-day. He is allowed to take exercise in the green for an hour.

9th October (*twenty-third day.*)—Dismissed cured and strong.

In this instance, nature, assisted by the diligent application of cold water to the head, hot water twice applied to the feet, and a drachm dose of the compound powder of jalap, accomplished all that could have been desired from general or local depletion.

It is supposed by some that leeching is less objectionable than general bleeding; but I think that the contrary proposition is often the truth. In opening a vein and allowing the blood to flow when the patient is sitting up, we have in the effect produced at the time, an accurate index by which to regulate the quantity to be taken: moreover, it is almost always easy to arrest at pleasure the flow of blood from the brachial vein. With leeches, it is different. In the present epidemic, where the tendency to hæmorrhage and the difficulty of arresting it are so great, I have several times seen alarming depression caused by the oozing from one or two leech bites, between the time when the leeches had been removed in the afternoon of one day and the noon

visit of the next. The special objection to leeching is the danger of causing the loss of an uncertain quantity of blood. In the case of Mullans, already described (page 27), it is recorded that the leech-bite bled little. This was an unusual occurrence, and must be attributed to the diligent and free application of cold water—a mode of treatment which, though generally useful, was not always effectual in preventing excessive bleeding.

Subsequently to the occurrence of Ritson's case, a boy was cupped for pleuro-pneumonia. In the circumstances, the treatment seemed called for, and had the desired effect of subduing the inflammation; but the recovery was for a long time most tedious and uncertain, notwithstanding the liberal exhibition of wine and porter. In a case which occurred previously to that of Ritson, in which there was suppression of urine, accompanied by stupor and delirium, a cupping in the lumbar region was followed by very great benefit.

In several cases of pulmonary inflammation, of various forms and degrees, I have seen all the symptoms disappear under the use of antimony and morphia combined; or under the liberal use of the morphia and ipecacuan lozenges. These remedies when used together with fomentations, sinapisms, or blisters, are safe and generally efficient substitutes for local bleeding in thoracic complications. As the result of my experiences, then, in this matter, I would say, that the cerebral, pulmonary, and abdominal complications in which it is proper to abstract blood are extremely rare; and that in very many such cases it is a most hazardous practice. The statements which have already been made sufficiently justify this opinion so far as the cerebral and pulmonary symptoms are concerned; and with regard to the abdominal affections, the same view may be unhesitatingly expressed.

In some of the most severe and threatening cases of abdominal pain accompanied by extreme tenderness on pressure, the patients have been well brought through simply by the diligent use of copious warm poultices and fomentations. Enlarged and tender spleens have often done well with this simple treatment. I do not mean to say that it would be proper in all such cases to abstain from abstracting blood; but I am anxious to point out how exceedingly valuable other remedies are, and how much safer it is in weak persons to rely on them than to take away any blood. Francis Rose, (*vide* p. 93), when far spent in strength, was seized with acute symptoms of enteritis and diarrhœa. A little morphia was added to the whisky which he was taking to sustain his feeble and fluttering pulse, and his abdomen was most assiduously fomented. Contrary to all expectation, the symptoms abated and recovery ensued. Depletion in any form would, I think, have killed him.

In robust females, in whom the menstrual discharge has become suppressed, or in others in whom any flux has been stopped by the fever, or in those of apoplectic tendency, the propriety of bleeding may be a legitimate question to entertain. It is one which I have more than once had a difficulty in deciding for myself, but I must say, that I have never had occasion to regret that I almost always ultimately resolved not to bleed. It is, however, one of those points regarding which it would be absurd to inculcate obedience to any routine directory.

As to a full bleeding cutting short the fever, I have no results of experience to offer on either side. Granting that it were justifiable to make this point the subject of experimental investigation, it certainly would not be possible to do so upon a sufficiently extensive scale, fo yield results of any

value, in the Royal Infirmary or Fever Hospitals of Edinburgh, as the patients (excepting the house officials) are, with a few exceptions, affected with the disease for some days before admission.

b. Medicines which act on the Skin.—During my first fortnight, I was in the habit of giving the aqua acetatis ammoniæ of the Edinburgh Pharmacopœia, Dover's powder, James' powder, ipecacuan, antimony, &c., in various forms and doses, as sudorifics and diaphoretics; but as I saw that patients who got none of them sweated as much as those who did, they were altogether abandoned. The Dover's and James' powders were often found to be worse than useless in consequence of their exciting troublesome vomiting. Blisters and sinapisms were occasionally employed as general stimulants for the relief of vomiting, and as counter-irritants in chest affections. For the latter purpose, croton oil was also used.

c. Application of Heat and Moisture to the Skin.—Although I believe that all diaphoretic and sudorific drugs are of little advantage, and that violent sudorific doses are injurious, I may nevertheless state that I have very often seen the best possible results from other means employed for the purpose of diaphoresis and sweating, such as the wet blanket, the partial warm bath, and tepid sponging. The general warm-bath is apt to produce exhaustion. I had three young patients affected with ardent fever and dry hacking cough, closely wrapped up in a blanket wrung out of hot water. Above this were placed several dry blankets. The patients sweated copiously from ten to fourteen hours, and were then removed to a dry bed, where they all sweated again so freely as to require to have their linen changed. They emerged from this sudorific

regimen perfectly free from fever, cough, and pains, but were excessively weak and languid. A child of four years old, when in the initial rigors of the relapse, was treated in the same way with equal benefit. I was led to try this plan from having read that Dalrymple, in the fever of Carthagena, in 1740, and Jackson subsequently in the yellow fever of the West Indies, had found that decided and immediate benefit resulted from rolling the patient in blankets wrung out of hot salt and water. Had the supply of bedding been adequate, this method would have been in general use in my wards. Sponging with hot and tepid water was very useful, and grateful to the patients ; but unfortunately my staff of nurses was not sufficient to have this plan tried satisfactorily to any great extent. Bathing the feet and legs in hot water, was signally beneficial in allaying restlessness and disposing to sleep. Hot poultices and fomentations to the abdomen, in all the abdominal complications, with or without headache, have been found of very great advantage.

d. Application of Cold to the Surface.—Cold water to the head was in general found to be quite sufficient to allay the headache, if diligently used. In a few instances a hydrochlorate of ammonia lotion and other evaporating lotions were used. The aspersion of the arms and chest with cold water had the effect of calming several restless and irritable patients. Dr. Heude became much more composed and easy after the continued bathing of his arms in very cold water for some hours.

When the skin is dry and its temperature above the healthy standard, cold water may be safely applied, at least to a part of the surface. This treatment is always exceedingly grateful to patients. The effect produced will best

regulate the quantity to be used, the surface to be acted on, and the time during which the application is to last. Of course, when any chilling results, the cold affusion must be stopped. If the application of cold water is deemed safe, the wet sheet of the hydromaniacs is not to be despised. The wet sheet was a favourite remedy of Bancroft in the yellow fever of Jamaica, long before cold water became the watchword of a sect of ignorant, gasconading empirics. It was more from want of an impression of its necessity than an apprehension of its danger that I never tried this plan.

It would be wrong to leave this subject without remarking that unless the skin be very hot and dry, the cold affusion is dangerous. A neglect of this precaution, and a persistence in its use, after the surface had become chill, has, we must remember, in the hands of the younger Frank and others, caused the supervention of pneumonia.

e. Warm Drinks—toddy, or negus, or gruel—are found very beneficial alone, or as adjuvants, in disposing to sleep, when administered early in the night, as soon as quiet is established in the ward.

f. Cold Drinks must be used in moderation, as they are apt to excite pain in the epigastrium and vomiting. Cold water, flavoured with oat-meal, and decoction of barley, are, from motives of economy, the drinks to which I have latterly restricted the patients. Of course, in private practice, various more agreeable drinks may be prescribed, such as lemonade and soda water. I may here remark that I often found hospital and other patients obtain more relief from thirst by allowing some small crystals of citric acid to dissolve in the mouth, than from any other means tried by them for the same purpose.

g. Purgatives.—The steady and cautious use of purgatives forms a most important part of the treatment. The great aim in administering these medicines, in this and other fevers, should be to clear out the bowels fully, and if possible daily, —at the same time carefully avoiding such substances and doses as might cause gastro-intestinal irritation or debility from catharsis. In the early days of the fever, in cases where there was a strong pulse and no abdominal tenderness I have found the compound powder of jalap very suitable and safe. The compound colocynth pill, combined with blue pill, was often employed, and found appropriate in these circumstances. From four to six grains of calomel is a good purge. If there seems to be a risk of calomel being rejected, it answers very well to combine with it a quarter or half a grain of opium. This method will also be found specially convenient with the bulky purgatives. The same object may be gained by administering, either a few minutes before or together with the purgative, an ounce of the creasote mixture of the Edinburgh Pharmacopæia. The black draught of sulphate of magnesia and senna was sometimes given to assist the operation of other purgatives. When, as was very frequently the case, flatulence existed together with constipation, the compound aloes and assafœtida pill was used with the best possible effects: as were likewise turpentine enemata.

As the object which I generally had in view in administering purgatives, was not to produce a discharge of serum from the mucous membrane of the bowels, but simply to clear out accumulating sordes and fæces, the drug most commonly selected—on account of its operation being generally mild and uniform—was castor-oil. If the patient had a great repugnance to this medicine, and another, nearly as

suitable, was asked for, it was given with a view to prevent the excitation of vomiting.

The action of purgatives was often assisted by domestic enemata, and when there was nausea together with obstinate constipation, infusion of senna, turpentine, croton oil, and other energetic substances were injected into the rectum, the drug used being selected according to the necessities of the case. It was only when there was a tendency to coma, and in a few very obstinate cases of constipation, that the more violent purgatives were given by the mouth.

Among the violent purgatives, I must not be considered as classing croton oil, as in spite of its activity, it does not produce irritation if given in a moderate dose. I have seen a patient, after having had eighteen stools from a dose of it, little if at all exhausted, after the purging was over. I have heard Dr. Christison (now Sir Robert Christison) and others make statements to the same effect. Given in doses of one two, or three drops, I never saw it produce abdominal irritation or debility, when administered either in fever or other diseases. Its operation has the advantage of being rapid and soon over. It seems sometimes to produce a soothing effect in addition to its moving the bowels. There is probably much truth in the opinions which Mr. Harket thus expresses regarding it as a suitable purgative in yellow fever—"Its power," says he, "in allaying gastric irritability and general nervous excitement, as well as restoring the circulation to the surface, and thus relieving the congestive state of the internal and deep-seated central vessels, is really extraordinary; and though I have seen it for the moment, when first given, increase the irritability, yet after a little time, I have hardly ever seen it fail in producing the desired end."

It is remarkable to see somewhat opposite opinions given

by Christison and Pereira — two classical authorities— regarding this purgative. Christison says:—"It is distinguished from other powerful purgatives, by occasioning much borborygmus, by its action commencing speedily and ending soon, and by the cathartic effect, however brisk and exhausting at the time, being followed by comparatively little debility."[1] Pereira, on the other hand, remarks:—"In comparing croton oil with other violently acrid purgatives, we find it distinguished by its speedy operation, the great depression of the vascular system, as well as the general feeling of debility which it produces, and by the uncertainty of its operation."[2] My experience is in accordance with the views expressed by Christison.

h. Medicines which act on the Kidneys.—When the urine was particularly scanty and scalding, and pain was complained of in the loins, these symptoms were considerably alleviated by administering the nitrate of potash, the spirit of nitrous ether, and other diuretics. A powder consisting of twenty grains of carbonate of soda, and ten of nitrate of potash, may be administered every two or three hours. Warm fomentations to the loins, cupping, &c., succeed admirably in exciting the kidneys to renewed secretion, acting, it is to be presumed, by preventing or moderating the congestion of these organs. When certain alarming head symptoms occurred, associated with suppression of urine, I have always directed the treatment to the kidneys rather than to the head, from a belief that the urea, not being thrown off in the natural way, was acting as a poison. The cases, how-

[1] CHRISTISON:—Dispensatory, p. 382.

[2] PEREIRA:—Materia Medica, Second edition, vol. ii, p. 1115.

ever, in which such a line of treatment is indicated are very few in number.

i. Medicines used to check the vomiting.—Pure opium, or this drug in some other form, was usually selected—as it generally happened that there co-existed with the vomiting other indications for the exhibition of it, or some of its preparations. A favourite prescription—for which I am indebted to the example of Dr. Alison—is a drachm of the solution of the hydrochlorate of morphia in the form of clyster. Vomiting of the most urgent kind, when nothing is retained in the stomach, is sometimes checked, and is most commonly moderated, by this plan. No medicines answered the various ends for which they were given more effectually than opiates. When, from any cause, they were deemed improper, the creasote mixture in often repeated ounce doses was substituted—in general with complete success. I never prescribed the hydrocyanic acid in the hospital, from fear of mistakes occurring through the ignorance of the nurses.[1] In some very obstinate cases of vomiting and hiccup, in which both the opium and creasote failed, timidity on this score was the only cause of its not being exhibited. In private practice, I have used it in the vomiting of this fever with signal benefit in two cases, where the patients had an extreme and prejudiced dislike both to opium and creasote. Blisters and sinapisms to the epigastrium have often been usefully employed alone, or as adjuvants, to check vomiting.

---

[1] The nurses in the New Fever Hospital were not trained nurses—the hospital having been suddenly opened and officered to meet an emergency.

k. Mercurials.—In this, as in most other fevers, the tolerance of mercury is very great. This remark must, of course, be held as applying only to the pyrexial period; I have several times had my patients accidentally salivated during the intermission by two or three pills having been used as aperients, consisting of two and a-half grains of the compound colocynth pill and an equal quantity of the blue pill. It was also uniformly observed that when salivation was caused by mercury given during the fever, it occurred simultaneously with, and not as a precursor to, returning health. These facts, therefore, leave us in doubt as to the amount of benefit to be ascribed to the mercury. A large part of the success might probably depend upon the opium which was given in combination with the calomel; and this treatment, together with the necessary support of the strength by stimulants, would possibly, in all the cases referred to, have been sufficient to carry the patient safely through the fever, if such a termination were at all possible. As to whether advantage was derived from the mercury in the yellow and other highly congestive cases, each reader can judge for himself from the clinical reports in this memoir.

It may somewhat assist in forming an opinion on this subject, to glance at the experience and statements of physicians regarding the use of mercury in some notable epidemics of yellow fever.

At one time, we find this drug in high repute as a remedy in yellow fever, and at another, declared to be worse than useless. In 1793, Chisholm, who employed it extensively in Grenada, was a strong advocate for salivation, styling mercury "the best aid in the treatment of yellow fever;" but his narrative of cases does not justify this estimate of its

curative powers. He gave it from a belief that the liver was the chief seat of the disease. This physician held that the more difficult it was to salivate the more malignant was the fever. In some cases he found that 2000 grains of calomel failed to produce any constitutional effect whereas it was caused in others by so small a quantity as ten grains! This statement certainly leads us to conclude, that the cases in which the mercury produced a beneficial effect were in themselves mild. Clarke, Fergusson, and others, equally with Chisholm, advocate the mercurial system as the most efficient in restoring the secretions and exciting the capillaries. They state that whenever there is evidence of the mineral having affected the constitution, the indications of amendment begin to appear. This, it need hardly be remarked, is hasty and inconclusive reasoning. Many of the cases which seem to have been benefited by the mercury might have recovered spontaneously without it. Perhaps there would have been fewer advocates for salivation, if this simple view of the matter had more generally suggested itself to candid inquirers.

Bancroft declares "that after some experience, assisted by no ordinary portion of inquiry and information, he had not been able to discover that the salivators were more successful than the others; and if not more successful, their practice has certainly been hurtful, because in most of the persons who have recovered, the (perhaps useless) salivation retarded the convalescence, and produced very troublesome affections of the tongue, mouth, and throat, with other ill consequences, as is well known and acknowledged, even by its advocates."

This remark of Bancroft is equally applicable to all the cases which I have salivated in the prevailing epidemic.

Dr. Rush, in his account of the yellow fever of Philadelphia, in 1794, says, "mercury seldom salivated until the fever intermitted or declined. I saw several cases in which the salivation came on during the intermission, and went off during its exacerbation, and many in which there was no salivation, until the morbid action had ceased altogether in the blood-vessels by the fever."[1] Dr David Grant, in his essay on the yellow-fever of Jamaica, avers, and probably with perfect truth, that he "has seen more victims to the mercury than to the fever." (P. 51.) Enough has been said to show the fallacies into which even candid mercurialists are apt to be led; and that is my only object in introducing these historical details.

Many upon reading my cases might suppose that the mercury exhibited was an important agent in the cure. I am anxious to state that the evidence is not, in my opinion, sufficient to decide the question, and is rather against the belief that the drug was beneficial.

In the yellow cases which I have treated since this memoir went to press, no mercurials have been used, except in one instance, I think, when calomel was administered for the sake of opening the bowels. The cases have nevertheless gone on at least as well as formerly during the pyrexial stage, and convalescence has been more rapid, being unretarded by sore mouth.

As the biliary secretion is excessive instead of being diminished in the yellow patients, it seems absurd to give a medicine which unquestionably acts as a direct stimulus on the liver. The more rational treatment is to counteract the already unduly active state of the organ, and, if that cannot be done, to clear away the superabundant bile from the alimentary

[1] RUSH:—Medical Inquiries and Observations, vol. iv, p. 94.

canal by suitable emetics and purgatives—employing at the same time all other available measures to prevent its causing undue irritation there.

l. Remedies to relieve the Muscular and Articular pains.—After a very extensive trial of colchicum both in large and small doses, I have come to the conclusion, that any relief which the patients experienced could not be attributed to its operation. I have sometimes fancied that the hydriodate of potass gave some ease; and in convalescence—during which the pains are most severe—it is unquestionably a very seasonable remedy, as it generally increases the urinary secretion and sharpens the appetite. When arthritic pain is combined with, or followed by, effusion, the hydriodate has been given with advantage both internally and externally.

Returning strength generally banishes the pains. Friction with the soap and opium liniment enables the patient better to endure them.

Within the last few days, at the recommendation of Mr. Alexander Fleming, I have tried the tincture of aconite as an external application; but some time must elapse before an opinion regarding its efficacy can be given.[1]

m. Tonics.—Tonic remedies are of much advantage during the intermission and in convalescence. The particular medicines to be selected must depend somewhat upon the circumstances of the case. I generally begin with gentian, cusparia, or cascarilla; and after a few days, prescribe one of

[1] [When the above paragraph was written, more than thirty years ago, the classical work on Aconite by Dr. Fleming was then being prepared for publication.]

the mineral acids in small doses three times a-day—or quinine, in the form of powder, pill, or potion, as may be most agreeable to the patient. Given simply as a tonic, from one to two grains of quinine twice or thrice a-day, have appeared to be a sufficient dose. In some patients who have come in much exhausted from previous attacks, the saccharine carbonate of iron, and other chalybeates, have been found very serviceable. In persons known to be addicted to ardent spirits, quassia was the tonic often preferred; and it seemed to suit remarkably well. Port and sherry wines are the best tonics; but they are too expensive as common hospital remedies.

n. Astringents.—Astringent remedies are required occasionally, as when diarrhœa, dysentery, and bronchitis complicate the cases. Almost the only astringents which I have had occasion to prescribe, have been the chalk mixture of the Edinburgh Pharmacopœia, the acetate of lead, and opium, singly, or one of the former combined with the latter. In a few obstinate cases, decoction of logwood was used. Of course, various other astringent remedies might have been used with equal propriety. In two cases of very troublesome chronic bronchitis the acetate of lead combined with squills proved of remarkable advantage. The formula used was that recommended in certain cases of this kind by Professor Henderson,—viz., a pill consisting of four grains of the acetate of lead and one of squills. In the cases referred to, one of these pills was taken six or eight times, at intervals of four hours: after this, they were used less frequently, but were repeated as long as the symptoms continued. I regret that I in some of the cases of profuse menstruation have not made trial of the astringent powers of gallic acid—a remedy

which has of late been brought into considerable repute by Professor Simpson.

o. Specific febrifuges.—No observations worthy of being recorded have been made with this class of remedies. The chlorinated solution of soda has been frequently prescribed, but nothing can be said of its therapeutic value. The patients were not injured by it.

The administration of large doses of neutral salts has been contemplated in several bad cases, but has never, as yet, been actually practised. Dr. Stevens recommends this mode of treatment in yellow and other malignant fevers, from a belief that the black colour of the blood depends upon an excess of acid; and he as well as others have spoken strongly in favour of its practical advantages. The theory is ingenious, but much of the reasoning by which it is supported is unsound; and the statements made regarding the efficacy of the treatment in the West Indies are greatly though not intentionally exaggerated. Those who wish to understand the merits of the question cannot do better than read the work of Dr. Stevens on the Blood, and a letter by Dr. Hacket in the 17th vol. of the Medico-Chirurgical Review.

p. Diet.—The regulation of the diet, from the moment that the appetite begins to return, ought to be a matter of the most special attention. When there has been much abdominal congestion during the febrile period, accompanied by debility, bland, nourishing, but not over-stimulating, food is required. Weak beef-tea as a drink, arrow-root with a little wine for dinner, and tea and bread in the morning and evening, have sometimes been ordered in preference to the low diet of the hospital; but whenever the circumstances of

the patient admitted of it, extra articles of food were not employed, one or other of the ordinary diets of the house being prescribed. The authorised diet tables are subjoined, in order that the reader may the better understand the prescriptions regarding diet which are to be found in the reported cases.

DIET TABLE OF THE EDINBURGH ROYAL INFIRMARY.

I.—LOW DIET.

BREAKFAST...	Bread	3 oz.
	Tea	½ pint.
DINNER	PANADO... Bread	3 oz.
	Milk	2 oz.
	Sugar	¼ oz.
SUPPER	Bread	3 oz.
	Tea	½ pint.

II.—RICE DIET.

BREAKFAST...	Bread	3 oz.
	Coffee	½ pint.
	An Egg.	
DINNER	Beef-Tea	⅘ pint.
	Rice Pudding.	
SUPPER	Bread	3 oz.
	Tea	½ pint.

III.—FULL DIET.

BREAKFAST...	Bread	6 oz.
	Coffee	½ pint.
DINNER	Potatoes	16 oz.
	Beef Steak	4 oz.
	Broth	1 pint.
SUPPER	Bread	6 oz.
	Tea	½ pint.

IV.—FULL DIET WITH BREAD.

The same as No. III, except that 6 oz. of *Bread* are substituted at Dinner for Potatoes, and ⅘ of a pint of *Beef-Tea* for Broth.

V.—COMMON DIET.

BREAKFAST...	Bread	6 oz.
	Coffee	½ pint.
DINNER	Potatoes	16 oz.
	Broth	1 pint.
SUPPER	Bread	6 oz.
	Tea	½ pint.

VI.—COMMON DIET WITH BREAD.

The same as No. V, except that 6 oz. of *Bread* are substituted at Dinner for Potatoes.

VII.—FULL DIET.

BREAKFAST...	Porridge	1½ pint.
	Butter-Milk	1 pint.
DINNER	Boiled Meat	6 oz.
	Potatoes	16 oz.
	Bread	3 oz.
	Broth	1 pint.
SUPPER	Potatoes	16 oz.
	New Milk	½ pint.

VIII.—FULL DIET WITH BREAD.

The same as No VII, except that *Bread* 8 oz. is substituted for Potatoes and Bread at Dinner; and *Bread*, 6 oz., for Potatoes at Supper.

IX.—EXTRA DIET.

BREAKFAST...	Porridge	2 pints.
	Butter-Milk	1 pint.
DINNER	Boiled Meat	8 oz.
	Potatoes, 1¼ lb.	20 oz.
	Bread	3 oz.
	Broth	1 pint.
SUPPER	Potatoes, 1¼ lb.	20 oz.
	New Milk	¾ pint.

1. Each Pint of Porridge to contain Three Ounces of Oatmeal.

2. Each Pint of Broth to contain One Ounce of Barley, Three Quarters of an Ounce of Vegetables, and to be made with Butcher-Meat in the proportion of Two Ounces of Butcher-Meat to each Pint of Broth.

3. In all the Diets, the weight is to be understood as applying to the food before being cooked.

By authority of the Managers,

(Signed) JAMES HOPE, *Clerk to the Incorporation.*

EDINBURGH, 26*th June*, 1843.

These different diets are upon the whole well adapted for all ordinary circumstances. The omission of porridge for breakfast, in the common diet, is unfortunate, as few of the patients like to breakfast without it. Moreover, the milk which is given with the porridge is the best recuperative aliment in the convalescence from fevers, and is equally useful during their course as a sustainer of strength. The dinner pudding, again, in the rice diet, is so sweet as to disagree with very many.

q. Treatment to prevent or modify relapses.—The result of many trials with sulphate of quinine in all doses, is—that it may often be made to modify and delay, but seldom to prevent relapses. Of late I have trusted more to general tonic treatment, careful regulation of the diet, and good nursing, than to any special antiperiodic treatment.

Having expressed this opinion of the sulphate of quinine, it may be well to quote one of the cases in which *it seemed* to prevent a relapse.

CASE XXVII.—SUMMARY.—*Crisis by sweating on the night between the 7th and 8th days.—No relapse. Treatment: quinine, &c.*

Robert Watson, Scotch, married, aged 47, a weaver from Paisley, of spare but strong make, having dark grey hair, light eyes, and a weather-beaten countenance, was

Admitted, 25th September, 1843 (*fourth day.*)—He states that he has been in Edinburgh only one day. Owing to want of employment in his own trade during the last two years, he has been obliged to take any kind of work for

which he was fit; and lately he has been driving cattle. During these two years, he has been frequently pinched for food. He had fever about 25 years ago.

He was taken ill on the 22nd, with headache and pain in the eyeballs, shivering, and a feeling of weakness. These symptoms continued, and there was superadded entire loss of appetite. He ascribes the origin of his illness to cold and fatigue.

His pulse is 96, of good strength. The tongue is brown, but moist. There is much thirst. The bowels are confined. The skin is hot and dry. There is no eruption. He has severe headache. The intellect is clear. He has a bad taste in the mouth, and feels very much depressed.

Applicetur aqua frigida capiti.

26*th September* (*fifth day.*)—The headache is easier The other symptoms are much as yesterday.

Injiciatur enema purgans statim.

27*th September* (*sixth day.*)—His bowels were opened by the enema. The pulse is 90, of good strength. The skin is hot and dry. He has a good deal of headache. There is slight bronzing of the countenance.

Continuetur aqua frigida capiti.

28*th September* (*seventh day.*)—The headache is much relieved. He complains of confusion of ideas. The pulse is 104. The tongue is parched and chapped. He has had several stools. He did not sleep during the night.

Habeat haustum c. solutionis muriatis morphiæ ℥ss *h. s.*

Habeat vini rubri ℥iv.

29*th September* (*eighth day.*)—He is much better to-day. He slept, but is unconscious of having slept. He sweated profusely. He was greatly troubled with dreaming during the night. The pulse is 72, and stronger than yesterday.

The tongue is moister, but still chapped. He has had two stools to-day.

Habeat cerevisiæ ℥xx vice vini.

30*th September* (*ninth day.*)—He is improving.

1*st October* (*tenth day.*)—He slept last night without a draught. He is greatly improved. The tongue, skin, and pulse are natural. The bowels are confined.

Habeat pulveris jalapæ compositi ʒiss statim.

6*th October* (*fifteenth day.*)—As he feels pretty strong, he is allowed to rise. He complains of slight pain in the shoulders.

R. sulphatis quiniæ ℈j; acidi sulphurici diluti ʒj; infusi gentianæ ℥iv. Sumat unciam sextâ quâque horâ.

9*th October* (*eighteenth day.*)—He is quite well. He has been taking the mixture till this morning.

Continuetur mistura quiniæ.

12*th October* (*twenty-ninth day.*)—He has been in perfect health since last report, and is to-day dismissed cured, having had no relapse. The quinine mixture has been continued till now, with the exception of the 12th, on which day it was omitted, not because it had caused, but lest it should produce headache.

THE COST OF TREATMENT.

The relative expense of the treatment of different hospital physicians is very striking and extraordinary. In a return to the Managers now before me, I find that the weekly expense of each bed varied, in different wards, during the months of September and October last, from 11s. to 19s. 1d. This private official document to which I refer—and which I have no right to quote except as regards my-

self—states that my weekly average expense during that period, when I had never under 84 beds, was at the rate of 12s. 10d. for each bed. The cost of treatment depends chiefly on the greater or less quantity of wine prescribed.

DURATION OF STAY IN HOSPITAL.

A very erroneous idea of the severity and duration of the disease may be entertained by looking only at the long stay in hospital of many of the patients. The dismal desolation and poverty of some of the poor families made it often imperative to detain patients long after they had recovered from the fever. An orphan boy, for instance, who lost both father and mother, and had no home to go to, could not at once be cast adrift upon the town; and with young respectable females, without home or friends, the difficulty in deciding how to act was often extreme. Often have I known that heads of families dismissed in good health, but too feeble to resume their employments, have gone back to their cheerless homes only to pledge the few articles of furniture they possessed, and thus at once became involved in difficulties from which they never could extricate themselves.

I cannot imagine anything which would have a more powerful effect in repressing juvenile prostitution, theft, and kindred delinquencies, as well as in preventing the spread of cureless poverty and its constant companion desolating disease—than a large and well-managed CONVALESCENT HOSPITAL. Is there no influential citizen in Edinburgh of sufficient energy to move the public in good earnest in behalf of so noble an enterprise?

CHAPTER VI.

STATISTICS.

It was intended to give tables showing some of the circumstances of the patients, in reference to their exposure to contagion, their crowding into small rooms, and their comparative poverty or comfort; but the irksomeness of this labour causes that task, at least in the mean time, to be delayed. It may, however, be stated, as the general impression left upon the mind by the inquiry, that poverty cannot be said to be the cause of the prevalence of the present fever, except in so far as by inducing general debility it predisposes to disease and especially to any prevailing epidemic. The crowding of persons so predisposed into small and ill-ventilated apartments is, there can be no doubt, at once the main cause of the spread of the epidemic and also of its confinement in a great measure to the habitations of the poor.

The subjoined tables exhibit at a glance the statistics of the relapses, together with some other facts regarding the cases. In reference to the date of the relapse, it may be stated, that its late occurrence in many cases is supposed to be owing to the special treatment adopted. Some of the relapses were so extremely short and slight—especially those treated by antiperiodic remedies—that they would certainly have often been overlooked had the cases not been placed under very strict observation.

The determination to supply no facts from memory, is offered as some apology for so many blanks appearing in the subjoined tables. They exhibit a view of 203 cases, including all those which proved fatal. Unfortunately there is no detailed record of a large number of the mild cases.

NO. I.—TABLE OF CASES TREATED I

Name.	Age.	Date of seizure.	Date of relapse.	Day of disease on which relapsed.	No. of re-lapses	Res
William Wilson ...	32	July 25	...	...	...	Cu
Robert Baillie	71	Not known	Not known	Not known	1	
John Hay	18	do.	do.	do.	1	
Robert Fraser.....	10	Aug. 3	No relapse in hospital.	...	...	
William Davidson...	30	,, 2	August 18	17th	1	
William Stewart	9	Not known	Not known	Not known	3	
David Collison	77	Aug. 2	August 18	17th	1	
James M'Kenzie	50	July 31	,, 18	19th	1	
Robert Hall	27	Not known	,, 4	Not known	1	
Alexander Christie...	14	Aug. 4	,, 17	14th	1	
James Pugh	15	,, 3	,, 15	13th	1	
Peter Martin	23	,, 1	Not known	Not known	3	
Thomas Laing	22	,, 3	August 18	16th	2	
George Ammon	17	,, 5	No relapse in hospital.	...	...	

THE NEW FEVER HOSPITAL.—MALES.

Date of admission.	Date of dismissal.	Period under observation.	Remarks.
August 2	August 21	20 days	
„ 2	October 9	69 „	Severe case. Extreme depression, requiring a very large amount of whisky, wine, &c.
„ 4	August 14	11 „	
„ 5	„ 26	22 „	
„ 6	September 11	37 „	
„ 5	„ 14	41 „	Last relapse milder than those preceding it.
„ 7	October 9	64 „	In the relapse, he was nearly carried off by dysentery. Abscess on the right hip, after the relapse.
„ 7	September 12	37 „	Severe case in the first attack. Tedious convalescence from the relapse, with swelling of the legs. Took much wine and porter.
„ 7	August 15	9 „	
„ 7	„ 26	20 „	Congestion of the spleen on the 6th day of the first attack; and also on the 2d of the relapse, or 15th day of the disease.
„ 7	September 11	36 „	Congestion of the spleen. *Vide* p. 164.
„ 7	October 19	74 „	He was dismissed without any febrile symptoms, at his own request, before relapsing, and was admitted on August 30th, with severe symptoms three days afterwards. Large parotid abscess, and extreme debility in the third relapse. Complete recovery.
„ 8	Not known	...	Epistaxis on the 6th day. He was dismissed upon the 18th, and readmitted on the 19th; but when he was dismissed again does not appear. His second relapse was treated in the Infirmary by another physician.
„ 8	August 18	11 „	Dismissed by desire, on the 14th day.

Name.	Age.	Date of seizure.	Date of relapse.	Day of disease on which relapsed.	No. of re-lapses	Result
David Smith	18	July 31	No relapse	...	...	Cured
George Johnstone ...	20	Aug. 6	...	...	...	Died
A. M'Kenzie	27	July 31	August 16	17th	1	Cured
James Pennycuick...	9	Aug. 5	,, 23	19th	1	,,
James Law.....	74	,, 6	...	...	...	Died
David Collison	12	,, 4	August 18	15th	1	Cured
Felix O'Neil	52	,, 6	,, 19	14th	1	,,
Francis Nicolson	50	,, 5	,, 29	25th	1	,,
John Brown	36	July 31	,, 16	17th	1	,,
Andrew Stewart	18	Aug. 13	No relapse	...	...	,,
John Small,.....	25	,, 2	do.	...	...	,,
Robert Meldrum	35	,, 9	August 25	17th	1	,,
E. Mains	18	,, 15	,, 27	13th	1	,,
J. Strang	30	,, 17	Not known	...	1	,,
James O'Connor	20	,, 18	August 28	11th	1	,,
A. Campbell	40	Not known	...	...	...	Died
Angus Cameron	13	Aug. 24	None in hospital	...	...	Cured
Peter Quin.....	23	,, 23	September 7	16th	1	,,
K M'Kenzie.....	36	,, 21	Not known	...	1	,,
H. Perfect	19	,, 22	None in hospital	...	...	,,
H. Collins	30	,, 23	do.	...	...	,,
H. Coyle	32	,, 24	do.	...	1	,,
A. Mill	25	,, 23	do.	...	...	,,
B. M'Peak.....	3½	,, 23	Not known	...	1	,,
D. White	47	,, 24	September 10	18th	1	,,
John Munon	24	,, 24	None in hospital	...	...	,,
Robert Fraser.....	39	Not known	Not known	...	1	,,

e of ssion.	Date of dismissal.	Period under observation.	Remarks.
st 8	August 31	24 days	Stupor on 11th day; eruption on 12th, which was thus recorded in the journal, "there is at present an eruption, of a dirty rose colour, covering the chest, shoulders, and back, which was observed by the nurse, two hours ago, to be of a vivid red colour. It is rather more vivid on the back than on the chest and shoulders, which have been exposed to the air for some time."
8	,, 12	5 ,,	G. Johnstone. *Vide* p. 50.
8	,, 29	22 ,,	
9	,, 29	21 ,,	
9	,, 15	6 ,,	J. Law. *Vide* p. 45.
10	September 16	38 ,,	
10	,, 10	32 ,,	Felix O'Neil, *Vide* p. 23.
13	,, 16	35 ,,	
13	August 28	16 ,,	
17	September 2	17 ,,	Small lake-coloured spots all over the body; not like fever eruption, but seeming to depend upon extravasated blood, from their ultimate colour.
17	,, 6	21 ,,	An eruption, apparently that of fever on the chest and back; but it was not observed till fading.
19	,, 6	19 ,,	
19	,, 5	18 ,,	Alarming epistaxis, when admitted.
21	October 10	51 ,,	
21	September 9	18 ,,	
25	August 26	1½ ,,	A. Campbell. *Vide* p. 55.
26	September 11	17 ,,	
26	,, 16	22 ,,	Epistaxis on the 7th day.
26	October 8	44 ,,	
26	September 8	14 ,,	
26	,, 4	10 ,,	Dismissed on 13th day.
26	,, 11	17 ,,	Relapsed out of hospital.
26	,, 25	31 ,,	
26	,, 20	26 ,,	
27	,, 29	34 ,,	D. White. *Vide* p. 87.
29	,, 8	11 ,,	Dismissed on the 16th day, by desire.
30	,, 27	29 ,,	

Name.	Age.	Date of seizure.	Date of relapse.	Day of disease on which relapsed.	No. of re-lapses	Resu
John Johnstone	22	admitt. during relapse	...	...	1	Cur
John Paterson	36	Aug. 28	September 8	12th	1	,,
James Smith	33	,, 27	No relapse	...	...	,,
William Watson ...	28	,, 31	None in hospital	...	...	,,
D. Leverty.....	35	,, 31	do.	...	...	,,
N. Adams	19	Sept. 2	September 14	13th	1	,,
J. Small	52	,, 4	None	...	none	Di
M. Golden.....	24	Not known	Admitted during relapse	...	1	Cur
J. Aitken	13	Sept. 4	September 17	14th	1	,,
Patrick Fagan	47	,, 2	,, 19	18th	1	,,
S. Baird	23	,, 3	None in hospital	...	...	,,
D. Ross	33	,, 3	September 17	15th	1	,,
John Connor	47	,, 7	,, 25	19th	1	,,
James Baxter.....	21	,, 9	,, 23	15th	1	,,
Archibald Hepburn.	16	Not known	,, 7	Not known	1	,,
William Robertson .	35	Sept. 6	,, 22	15th	1	,,
James Kelly	16	Aug. 29	,, 12	15th	1	,,
Henry Robertson ...	34	Sept. 9	,, 25	17th	1	,,
Alex. Robertson ...	5	,, 9	,, 20	12th	1	,,
William Robinson...	33	,, 19	,, 23	15th	1	,,
David Wright	34	,, 10	,, 25	16th	1	,,
Thomas M'Cabe ...	23	,, 9	,, 22	14th	1	,,
James Russel.....	52	,, 10	None	None	...	Di
John M'Lean	19	,, 11	September 24	14th	1	Cu
William Dalias.....	22	Not known	Not known	...	1	,
M. O'Neil	15	Sept. 11	September 27	17th	1	,
Thomas Thompson.	23	,, 10	,, 25	16th	1	,
James Wood	23	,, 12	Not known	Not known	1	,
John M'Donald.....	7	,, 16	October 2	17th	1	,,
James Rutherford ...	16	,, 14	September 28	15th	1	,,

Date of Admission.	Date of dismissal.	Period under observation.	Remarks.
ug. 31	September 9	10 days	
„ 31	„ 29	30 „	
„ 31	„ 19	20 „	Typhus, with eruption.
ptem. 3	September 12	10 „	Dismissed on 13th day, by desire.
„ 3	„ 12	10 „	Do. do.
„ 4	October 2	29 „	Vomiting of bloody matter, followed by epistaxis, on the 4th day.
„ 6	September 8	3 „	Sudden death from disease of the heart.
„ 6	„ 14	9 „	
„ 6	October 7	32 „	
„ 8	„ 8	31 „	Enlargement of the submaxillary glands, during convalescence.
„ 9	„ 2	24 „	
„ 9	„ 9	31 „	Enlargement of spleen on 3d day of the relapse, dark abdominal stripe.
„ 10	„ 7	28 „	
„ 11	not recorded	...	
„ 11	September 18	8 „	Admitted during relapse.
„ 11	October 6	26 „	
„ 12	September 22	11 „	
„ 12	October 7	26 „	
„ 12	„ 7	26 „	
„ 12	„ 9	28 „	Wm. Robinson. *Vide* p. 80.
„ 12	„ 9	28 „	
„ 13	„ 5	23 „	
„ 13	September 15	3 „	Was only a day and a half in the hospital. He died unexpectedly
„ 13	October 7	25 „	
„ 14	„ 5	32 „	Became yellow in the relapse. Had epistaxis, delirium, and the other symp-
„ 14	„ 6	23 „	
„ 16	„ 9	24 „	Thomas Thompson. *Vide* p. 19.
„ 19	„ 9	21 „	Boil over right trochanter during convalescence.
„ 19	„ 9	21 „	
„ 19	„ 13	25 „	Tonsillitis.

Name.	Age.	Date of seizure.	Date of relapse.	Day of disease on which relapsed.	No. of relapses
John Ritson	19	Sept. 17	September 30	14th	1
Dr. Heude	23	,, 21	None	15th	...
John Mullans.....	32	,, 21	October 5	...	1
Robert Watson	47	,, 22	None in hospital	...	...
John M'Gill	26	,, 23	October 7	15th	1
J. Jameson	12	,, 24	,, 6	13th	1
John Cowie	43	,, 23	,, 6	14th	1
William Brunton ...	32	Sept. 27	None	...	...
David Dickson	23	,, 30	October 12	13th	1
Colin M'Kay.....	22	Oct. 2	None in hospital	...	...
Samuel Smith.....	35	,, 30	October 13	14th	1
M. Dowlands.....	42	,, 26	None	...	...
D. Matheson	57	,, 29	...	...	...
Daniel M'Farlane...	12	admitt. during relapse	...	Not known	1
John Conway	60	Oct 25	October 9	15th	1
Peter Conway	16	,, 6	,, 20	15th	1
William Dodds.....	20	,, 4	,, 17	14th	1
Robert M'Ghee.....	18	Sept. 30	,, 20	21st	1
Fr. Douglas	16	Oct. 9	Not known	Not known	1
Hugh Cunningham	22	,, 5	None in hospital	...	...
E. Stevenson	14	Not known	Not known	...	1
James Bird.....	48	Oct. 6	1st on Oct. 23	13th	4
Samuel Allan.....	29	,, 8	October 23	16th	1
James M'Guire	20	,, 14	,, 26	13th	1

NO. II.—TABLE OF CASES REPORTED

E. Fairns	45	July 27	None in hospital	...	...
Js. Connor	50	Aug. 1	August 16	16th	1
Janet Bailie	70	Not known	Not known	15 ?	1

Date of admission.	Date of dismissal.	Period under observation.	Remarks.
Sept. 20	October 9	20 days	*Vide* p. 220.
„ 21	„ 21	32 „	*Vide* p. 108.
„ 22	„ 24	33 „	J. Mullans. *Vide* p. 27.
„ 25	„ 19	25 „	R. Watson. *Vide* p 242.
„ 25	„ 31	37 „	Epistaxis, and slight yellowness in the relapse.
„ 29	„ 23	25 „	
„ 29	November 20	53 „	Very severe periodic rheumatic pains in the relapse.
October 1	October 9	9 „	W. Brunton. *Vide* p. 64.
„ 5	„ 24	20 „	
„ 6	„ 16	11 „	Dismissed by desire on the 15th day. Profuse epistaxis on 9th day.
„ 6	„	...	
„ 7	„ 18	12 „	M. Dowlands. *Vide* p. 78.
„ 7	„ 17	11 „	D. Matheson. *Vide* p. 69.
„ 9	„ 15	7 „	
„ 9	November 10	33 „	J. Conway. *Vide* p. 125.
„ 9	October 26	18 „	
„ 9	November 13	41 „	W. Dodds. *Vide* p. 101.
„ 9	...	...	
„ 10	November 21	44 „	
„ 11	„ 4	25 „	
„ 11	...	...	Enlargement of the superficial inguinal glands of the left side, during convalescence from the relapse.
„ 13	20	39 „	
„ 14	...	...	
„ 18	...	...	

THE NEW FEVER HOSPITAL.—FEMALES.

August 2	August 17	16 days	Great vascularity of the conjunctiva during the fever.
„ 2	September 9	39 „	
„ 2	October 9	60 „	*Vide* p. 124.

Name.	Age.	Date of seizure.	Date of relapse.	Day of disease on which relapsed.	No. of relapses	Result
S. Cormack	50	July 30	None in hospital	...	...	Cured
El. M'Peak	40	,, 31	August 13	14th	1	,,
Cath. Munro	14	,, 31	,, 14	15th	1	,,
Mary Tain	31	,, 29	,, 23	26th	1	,,
J. M'Lure	43	,, 26	No relapse ascertained	...	...	,,
J. M'Gregor	48	Aug. 2	August 16	15th	1	,,
Js. Gardiner	15	,, 3	,, 19	17th	1	,,
E. M'Peak	18	,, 6	,, 21	16th	2	,,
M. Stafford	38	admitt. during relapse	...	...	1	,,
E. Morrison	24	Aug. 5	Not known	Not known	1	,,
M. Smith	7	,, 4	...	...	...	,,
Mary Kemp	44	,, 4	August 17	14th	1	,,
El. Wilkinson	17	Aug. 2	,, 17	16th	1	,,
J. Finney	36	,, 6	,, 19	14th	1	,,
A. Crosby	36	,, 5	,, 15	11th	1	,,
C. Brown	15	,, 6	,, 21	16th	1	,,
C. Alexander	19	,, 7	,, 18	12th	1	,,
P. Cochrane	39	admitt. during relapse	...	...	1	,,
A. Campion	16	Aug. 10	,, 23	14th	1	,,
A. Penman	18	,, 14	,, 27	14th	1	,,
A. Thomson	36	,, 19	Not known	...	1	,,
E. M'Gra	10	,, 20	do.	...	1	,,
Js. Thomson	33	,, 16	None in hospital	...	...	,,
M. Mullans	35	,, 17	August 31	15th	1	,,

Date of admission.	Date of dismissal.	Period under observation.	Remarks.
Aug. 5	August 14	10 days	Dismissed on 15th day, about the usual date of the relapse.
„ 6	September 20	46 „	Abortion on 15th day, being the 2d of the relapse.
„ 5	not recorded	...	
„ 5	September 9	36 „	
„ 5	„ 6	33 „	
„ 6	„ 19	45 „	Yellowness of conjunctiva on 10th day unaccompanied by any bad symptoms.
„ 7	„ 4	29 „	
„ 7	„ 9	34 „	A previous attack was treated in Ward No. 17 of the Royal Infirmary, before admission into the New Fever Hospital.
„ 8	August 21	14 „	
„ 8	„ 9	33 „	Tonsillitis in the relapse.
„ 8	„ 23	16 „	No distinctly formed relapse; but two attacks of heat of skin, followed by copious sweating each time, between the date of admission and dismissal.
„ 9	„ 9	32 „	
„ 9	September 4	27 „	Delirum, with a tendency to coma in the first attack; also profuse epistaxis.—Effusion into the wrist and knee-joints during convalescence from the relapse.
„ 10	„ 13	35 „	Tedious and severe relapse.—Great pain in the feet during recovery.
„ 10	August 22	13 „	
„ 10	September 4	26 „	Epistaxis on 2d and 7th day.
„ 11	August 29	19 „	
„ 13	„ 22	10 „	On admission there were the remains of yellowness, which, it was ascertained, had appeared on the 3d day of the attack.
„ 15	September 11	28 „	
„ 18	„ 11	25 „	
„ 20	„ 20	32 „	
„ 21	„ 25	36 „	
„ 22	„ 20	30 „	
„ 22	„ 29	8 „	Relapsed out of hospital.

Name.	Age.	Date of seizure.	Date of relapse.	Day of disease on which relapsed.	No. of relapses	R
E. Turnbull	36	Aug. 18	Not known	...	1	C
S. Duffy	24	„ 17	None in hospital	...	...	
R. Cuthbertson	60	Not known	...	...	...	I
M. Sutherland	26	Aug. 22	...	...	1	C
P. Forrest	20	„ 17	August 31	15th	1	
E. Flockhart	30	„ 25	September 8	15th	1	
E. M'Millan	18	„ 21	„ 29	40th	1	
Jane Thomson	20	„ 27	„ 7	12th	1	
Jane M'Lachlan ...	23	„ 23	No relapse in hospital	...	...	
M. Kirkwood	15	„ 28	Not known	Not known	1	
Rose Fraser	30	„ 30	September 14	16th	1	
C. M'Gra	13	Not known	Not known	...	1	
Mary Fraser	33	Aug. 24	None in hospital	...	...	
Janet Fortune.....	21	Not known	September 7	Uncertain	1	
Mrs. Livingstone ...	32	Aug. 30	None	...	...	
M. Ralston	29	„ 30	Not known	...	1	
E. Bannerman	14	„ 23	September 6	15th	1	
C. Aitken	31	Sept. 3	„ 24	22d	1	

Date of admission.	Date of dismissal.	Period under observation.	Remarks.
Aug. 23	October 6	45 days	
„ 24	September 1	8 „	Dismissed on 16th day.
„ 25	August 28	3½ „	Great typhoid depression.—Died.—No autopsy.
„ 25	September 20	27 „	
„ 26	„ 16	22 „	
„ 26	October 5	41 „	Pain and swelling of the wrist and ankle-joints during convalescence from the relapse.
„ 26	„ 25	61 „	This girl was under observation till her second attack in the hospital on the 40th day. During the second attack she had much hysterical dyspnœa.
„ 30	September 16	18 „	
„ 30	„ 11	13 „	Dismissed on 20th day.
„ 31	October 4	35 „	Affection of the cornea during convalescence from the relapse.
Septem. 1	September 30	30 „	
„ 1	„ 25	25 „	Aborted on 9th day.
„ 2	„ 19	18 „	
„ 2	„ 23	22 „	She was dismissed on the 6th, at her own urgent request; and was readmitted in the relapse on the 9th.
„ 2	„ 4	2½ „	Died on 6th day. She was delivered on the 29th August of a child, at the full time. She was seized on the 30th with cough and dyspnœa; petechiæ were observed on the body, and a black matter issued from the mouth and nostrils. On the 31st, she became yellow. The cough, dyspnœa, petechiæ, and yellowness, existed on admission. She died asphyxiated, owing to the accumulation of secretion in the bronchial tubes. No autopsy was obtained.
„ 4	„ 30	27 „	
„ 6	„ 15	10 „	
„ 6	October 5	30 „	

Name.	Age.	Date of seizure.	Date of relapse.	Day of disease on which relapsed.	No. of relapses	Result
C. Dunn	28	Not known	September 5	Not known	1	Cured
E. Cleghorn	52	Sept. 2	...	...	...	,,
E. M'Intosh	25	,, 3	,, 18	16th	1	,,
M. Durie	20	,, 2	,, 14	13th	1	,,
M. Mullans	14	,, 4	,, 29	26th	2	,,
M. Armstrong	40	Aug. 31	,, 15	16th	1	,,
J. Stewart	19	Sept. 6	,, 19	14th	1	,,
L. Gartlan	22	,, 7	,, 20	14th	1	,,
C. Ballantyne	22	,, 5	,, 20	16th	1	,,
J. Kerr	22	,, 6	,, 18	13th	1	,,
M. Donald	19	5	,, 17	13th	1	,,
S. Marshall	24	6	,, 20	15th	1	,,
E. Keir	21	6	,, 19	14th	1	,,
J. Fraser	27	,, 8	,, 20	13th	1	,,
E. Mason	19	Not known	,, 22	Not known	1	,,
E. Coghill	18	do.	None	None	...	Died
S. M'Peak	16	Sept. 12	September 27	16th	1	,,
J. Grahame	16	,, 7	,, 23	17th	1	,,
B. Matheson	30	,, 17	Oct. 12th & 25th	26th & 39th	2	,,
M. Windon	16	,, 16	September 27	12th	1	,,
A. Shaw	19	,, 16	,, 30	15th	1	,,
J. Pirrie	40	,, 13	,, 27	15th	1	,,
S. Hamilton	16	,, 15	,, 28	14th	1	,,
M. Dempster	28	,, 15	Not known	...	1	,,
M. Paterson	33	,, 16	,, 29	14th	1	,,
F. M'Kenzie	25	,, 18	,, 28	11th	1	,,
J. Bishop	33	,, 3	,, 17	15th	1	,,
C. Turner	14	,, 17	October 6	20th	1	,,

Date of admission.	Date of dismissal.	Period under observation.	Remarks.
Sept. 6	September 30	25 days	
„ 6	October 12	37 „	She required a large amount of stimulants.
„ 7	„ 6	30 „	
„ 7	September 27	21 „	
„ 7	October 12	36 „	Was dismissed by desire on the 16th September, and readmitted October 1, in a second attack. She had a third attack in the beginning of November, when she was treated by Dr. Alison.
„ 7	„ 6	30 „	
„ 9	„ 4	26 „	
„ 9	„ 4	26 „	L. Gartlan. *Vide* p. 37.
„ 9	September 29	21 „	
„ 9	October 5	27 „	
„ 11	September 26	16 „	
„ 11	„ 26	16 „	
„ 11	October 4	24 „	
„ 11	„ 8	28 „	
„ 11	„ 6	26 „	
„ 12	September 17	5 „	Continued fever, complicated with pneumonia. No section was obtained.
„ 15	October 4	20 „	
„ 15	„ 8	24 „	This girl had amenorrhœa during the previous four months. During the relapse, she had severe hysterical symptoms. Dark abdominal stripe from ensiform cartilage to pubes appeared in both attacks, and almost entirely disappeared in the intermission.
„ 17	November 21	66 „	
„ 18	October 9	22 „	
„ 18	„ 20	33 „	Dysentery: together with it there appeared a dark abdominal stripe.
„ 18	„ 12	25 „	
„ 19	„ 6	18 „	
„ 19	„ 20	32 „	
„ 19	„ 26	38 „	
„ 20	„ 14	25 „	
„ 21	„ 9	19 „	
„ 21	„ 20	30 „	

Name.	Age.	Date of seizure.	Date of relapse.	Day of disease on which relapsed.	No. of relapses	R
Mrs. Morris	45	Sept. 16	October 1	16th	1	D
E. Menzies	34	,, 20	,, 5	16th	1	C
M. M'Kenzie	42	,, 21	,, 7	17th	1	
H. M'Indoe	50	,, 21	,, 5	16th	1	
E. Scott	30	,, 25	,, 7	13th	1	
J. Borthwick	12	,, 24	,, 9	16th	1	
E. Herd	28	,, 19	,, 5	17th	2	
M. M'Kay	55	Not known	One on Nov. 12	...	1	
C. Goodsir	15	Sept. 24	November 6	13th	1	
M. M'Intyre	28	,, 19	None	...	...	
E. Geddes	37	,, 29	Oct. 14, & Nov. 3	16th & 36th	2	
Mrs. Cox	27	,, 23	October 8	16th	1	
A. Wilkie	46	,, 25	,, 7	13th	1	
H. Rose	26	,, 26	,, 11	16th	1	
H. Thomson	21	,, 29	,, 14	16th	1	
M. Wallace	36	,, 28	,, 16	19th	1	
M. M'Cabe	22	Not known	Not known	...	1	
Mrs. Allan	42	Sept. 17	September 27	11th	1	
M. Muirhead	44	Oct. 3	October 14	12th	1	
Mrs. Ross	20	,, 1	,, 13	13th	1	
Mary Ross	32	Sept. 30	,, 14	15th	1	
Mrs. Tabor	28	Oct. 1	,, 13	13th	1	
H. Rennie	42	,, 1	Not known	...	1	
J. Merrilees	39	Sept. 26	None	...	1	D
M. Kerr	13	Oct. 2	Not known	...	1	C
Mrs. M'Intosh	61	,, 1	October 19	19th	1	
A. Young	21	Sept. 23	,, 10	18th	1	
H. Gray	34	Oct. 6	None in hospital	...	...	
M. Burns	56	,, 4	Not known	...	1	
Mary M'Cabe	22	,, 8	October 22	15th	1	
M. Strawbridge	18	Sept. 23	,, 4	12th	1	
Mrs. Stupart	40	,, 23	Admitted during relapse.	...	1	
J. Stupart	12	,, 23	do.	...	1	
Mrs. Shee	29	Oct. 4	October 20	17th	1	

Date of admission.	Date of dismissal.	Period under observation.	Remarks.
Sept. 21	October 8	18 days	Morris. *Vide* p. 73.
„ 21	„ 31	41 „	Dark abdominal line: menstruation.
„ 22	„ 30	39 „	
„ 25	„ 16	22 „	
„ 25	„ 25	31 „	Considerable yellowness on 6th day.
„ 26	„ 16	21 „	
„ 26	„ 21	26 „	
„ 27	November 25	60 „	Sloughing of pudenda.
„ 28	October 26	29 „	
„ 28	„ 25	28 „	Typhoid; no eruption; continued fever.
„ 29	November 21	55 „	
„ 29	„ 23	57 „	Cox. *Vide* p. 118.
„ 30	„ 2	34 „	Wilkie. *Vide* p. 105.
„ 30	October 21	26 „	H. Rose. *Vide* p. 33.
October 1	„ 25	25 „	
„ 1	November 4	38 „	*Vide* p. 73.
„ 3	„ 9	38 „	
„ 3	„ 9	38 „	Hysterical symptoms in the relapse.
„ 3	„ 7	36 „	
„ 4	October 22	19 „	
„ 4	„ 23	19 „	
„ 5	November 20	47 „	Profuse menstruation.
„ 6	„ 21	47 „	
„ 6	October 9	$3\frac{1}{2}$ „	Merrilees. *Vide* p. 61.
„ 6	„ 26	21 „	
„ 7	December 10	65 „	M'Intosh. *Vide* p. 121.
„ 8	October 14	7 „	
„ 9	„ 13	5 „	Dismissed, by desire, on 8th day. In this case, the ordinary symptoms of the epidemic fever existed in a very mild form, with the exception of headache, which was not felt at all.
„ 9	...	...	
„ 9	November 7	30 „	
„ 10	October 25	16 „	
„ 10	November 21	43 „	
„ 10	„ 21	43 „	
„ 10	„ 8	29 „	

MEMORANDA.

In April, 1843 there were in the Infirmary . . 96 Fever patients.
„ May „ „ . . 133 „
„ June „ „ . . 161 „
„ July „ „ . . 206 „
(In July, 1842, fifty-five.)

The Janitor's house was first opened, to accommodate more patients. Next the New Fever Hospital was opened in the beginning of August, with 60—soon afterwards increased to 86—beds.

On August 14th, the Infirmary, &c., contained . 280 Fever patients.
„ 28th . . . . . 306 „

The Lock Fever Hospital was opened on September 1st with 35 beds.

On September 11th, there were altogether . . 371 Fever patients.

Next the Male Shed was opened with 26 beds; and on the 20th September, the Chapel and Servants' room were fitted up with 20 beds.

On September 25th, the number was . . . 469 Fever patients.

The Female Shed was opened on October 9th, with 55 beds.

On October 11th, there were . . . . 482 Fever patients.
„ November 6th . . . . . 501 „

Number of Fever Patients during the last Six Weeks in all the Fever Wards.

November	13	467
„	20	478
„	27	465
December	4	471
„	11	451
„	18	470

ADDITIONAL REMARKS

ON THE

EDINBURGH EPIDEMIC FEVER OF 1843-44.

[*From the London Medical Gazette, April*, 1849.]

ADDITIONAL REMARKS.

HAVING long had nearly ready for the press a considerable supplement to my monograph on the Epidemic Fever which prevailed in Edinburgh in 1843-44, I have hitherto refrained from obtruding the following remarks upon the readers of the MEDICAL GAZETTE; but having resolved—from the incompleteness of some of my materials—to delay and alter the plan of my appendix, I now desire to make a short personal statement on one or two important points regarding which I am unwilling any longer to be misunderstood.

In making this communication, it is not necessary to criticise the opinions or impugn the statements of any one. I desire simply to place my own views in a correct light, and to re-assert and vindicate the claim to scrupulous accuracy as to facts which was set forth in my introductory chapter. "The main object," I there said, "in what follows, is to present a faithful account of the natural history and pathology of the prevailing epidemic, together with such details of the treatment followed, as appear to be of practical importance. Every fact stated is put forth almost in the very words in which it was noted down at the moment of observation—a practice which ought to be considered imperative on all who venture to lay the result of their experience before the profession. It cannot be denied that great

hindrance has accrued to the improvement of the Science of Medicine from physicians describing the phenomena of disease, and the supposed effects of remedies, from general impressions remaining in their minds after the lapse of hours, days, weeks, or even longer intervals—in place of founding their statements upon an analysis of facts committed to paper at the very time they were being observed at the bedside of the living patient or at the dissection of the dead."

Lest the reader of Dr. Wardell's papers should be impressed with the idea that I did not observe and record the phenomena of the Epidemic Fever in the way to which I lay claim, I beg to state that I scrupulously followed out the laborious method recommended in the above extract.

The only two points to which I now wish to call attention, are my remarks on the *state of the Blood*, and on the question as to the *rosy elliptical Eruption* being "*always*," or "*almost always*," absent.

I. STATE OF THE BLOOD.

In the course of my observations on this subject, I say—"Professor Allen Thomson had the goodness to lend me his able assistance, in examining the blood of a number of my patients, by means of the microscope. A few drops were taken on the same day (24th Oct.) from the thumbs of about a dozen persons, some of them in the pyrexial, and others in the apyrexial stage of the disorder. It was found that in all of them, there was an unusual number of pus-globules; and in some cases, in addition to this, all the globules were found serrated and notched. A gentleman present upon this occasion was observed to have his blood

exactly in the same state as the fever patients, and within two days he was seized with fever, and went through two mild attacks, or—to use conversational phraseology—*the fever and the relapse*. The blood of some other healthy persons was also examined at the same time : it exhibited nothing unnatural, and none of these latter individuals have taken the fever, although a month has now elapsed since the observation was made." [1]

Dr. Wardell, in speaking of the blood, thus comments on the above statement :—

"On being drawn from the veins, it was of a less formative consistence than natural, and Dr. Cormack says that the 'crassamentum was a spongy mass, instead of a firm fibrinous clot.' That author also says that the microscope revealed lesion, as evinced by the presence of pus-globules, and in addition, that the globules were found serrated and notched. From inquiries made personally of Professor Allen Thomson, who instituted the researches, it appears that there must have been some misunderstanding on the part of Dr. Cormack, as the former did not corroborate the statement which is made by the latter in his work. Pus-globules certainly did not exist in the blood. In order to be fully satisfied on this point, I procured the blood of a number of patients in different stages of the disease, which my friend and late teacher Dr. Hughes Bennett (whose histological acquirements, especially with regard to morbid anatomy, are well known to the profession) had the kindness to carefully examine, and this gentleman assured me that no pus-globules existed, nor yet the serrated and

[1] CORMACK :—Natural History, Pathology, and Treatment of the Epidemic Fever at present prevailing in Edinburgh and other towns. Churchill: London. 1843. [See p. 169 of this volume.]

notched appearance as reported to have been observed by Professor Allen Thomson."[1]

There was no "misunderstanding" on my part. I have now before me the original notes drawn up by Dr. Allen Thomson and myself of the observations made on the 24th October, 1843, and intended to be the commencement of a series, but which unfortunately we found it impossible to continue. These notes were made at the time of observation, with the blood still under the microscope, and are illustrated hy numerous sketches by Dr. Allen Thomson of the notched and serrated blood-globules. The following is an exact transcript of a portion of our original minute, in the handwriting of Dr. Allen Thomson :—"24th October, 1843.—Observations made on the blood. 1. *James Laing.* —Blood contains a large quantity of colourless globules of two sizes : one set slightly larger than the blood-globules ; the other fewer in number, and exactly similar to the globules described as pus-globules. 2. *Rose.*—Globules very much broken up, and ragged on the edges ; very few colourless globules ; a *few* of the largest size," &c. &c. In the other ten cases, we have noted similar appearances almost in the same words.

I do not wish to attach much value to the above observations of one day, as illustrating the state of the blood in an epidemic which lasted for many months. I merely protest against these observations, which were carefully made, and as faithfully recorded, being described as a "misunderstanding"—upon the faith of Dr. Wardell's reminiscence of a conversation with Dr. Allen Thomson, and on Dr. Hughes Bennett's microscopic observations, made, I have no donbt,

[1] WARDELL (John R.) :—Reprint from *Medical Gazette*, pages 83 and 84.

with skill and accuracy, but *made at a different time on the blood of other persons*, labouring, I believe, under *another kind of fever*.

When the objects were being looked at, I remember Dr. Thomson stating, that he was always distrustful of microscopic observations made on the blood-corpuscles; and more especially as to the jagged appearance of their margin, as he thought he had seen a great variety in the phases of that appearance according to differences in the mode of observation, such as the way in which the blood was spread on the glass, the time it was allowed to remain there, the degree of drying before it was covered, and the state of cleanness of the glass plates. It was, therefore, with these sources of fallacy present to my mind that I avoided generalizing, and strictly confined my statement to what had been actually seen in the blood of twelve persons, on the 24th October, 1843. It must be admitted, however, that in so far as a limited number of observations are to be trusted (and with the reservations implied above) there is reason to believe that we saw, in the blood examined, an abnormal appearance of the blood-globules and a great number of the corpuscles called pus-globules. It is not, however, because I attach importance to these microscopic observations that I have said so much upon the subject, but because I feel that whatever faults may be charged against my work, it has the merit of being as faithful a record of my experience of the fever, up to the date of its publication in December, 1843, as could have been produced. No history could have been more pains-taking, for every case was written with my own hand, or at my dictation at the bedside and in the anatomical theatre by my accomplished assistants Dr. Heude and Mr. John W. Reid.

II. THE ERUPTION.

At page 84, in summing up the distinctive characters of the disease, I say—"*The rosy elliptical eruption is absent in almost every case in the present epidemic.*"[1] Had my work been published at the close of the epidemic, or even some weeks later, the word "almost" would have been deleted from the above sentence. I had then become quite satisfied that the doctrine first promulgated by Professor Henderson, in his clinical lectures,[2] and soon generally adopted in Edinburgh, was correct—viz. that an eruption characteristic of typhus or typhoid had never occurred in the "relapsing" epidemic of 1843-44; and that the fevers were the products of different morbid poisons. This fact became very strikingly manifest towards the close of the epidemic to which my monograph refers, when the ordinary Edinburgh typhus began to rage. We had our convalescents from the expiring epidemic of the relapsing fever frequently seized with the exanthematous typhus then setting in—till such time as typhus cases were kept apart from those recovering from the relapsing fever. I have notes of nineteen patients who went through unequivocal attacks of both fevers, and other physicians, I know, kept records of a much greater number of similar instances. I forbear at present enlarging upon this question, as it is enough to say that the evidence was

---

[1] My work was published on the 20th December, 1843. In the above extract the exact words are taken from the original edition. In the present edition (p. 128), to prevent confusion, I have expressed my present opinion.

[2] Afterwards in the Edin. Med. and Surg. Journal for January, 1844.

so palpable and overwhelming that (upon the unanimous representation of the physicians) the managers of the Infirmary and Fever Hospitals framed rules to save those convalescent from the first epidemic from exposure to the contagion of the incipient typhus epidemic. I believe the care with which these rules were framed, and the zeal with which they were enforced, saved many lives.

In speaking of my views regarding the eruption, Dr. Wardell seems (I believe without intending it) to accuse me of dogmatism. "Dr. Cormack," says he, "comes, and rather sweepingly, to the conclusion, that the elliptical spots were observed in epidemic cases, although he is enabled to indicate but one individual," &c. I erred, as I soon discovered, and have now admitted, as to the case referred to; but when I proclaim this error, and unreservedly give in my adhesion to Dr. Henderson's doctrine, I must, in justice to myself, be allowed to extract the following paragraph, as it shows, that from the very first I contemplated having to alter or modify my opinion.

"If some think," said I, "that on this point there has been exhibited an undue reluctance to enter fully upon an important pathological inquiry, I beg to remind them, that data are yet wanting to entitle us to discuss it fairly and with profit. This may be attempted in a subsequent publication at the close of the epidemic; in the meantime let the remark of Rousseau be remembered, 'that the truth is in the facts, and not in the mind which observes them;' and it is hoped that some important facts have been even here communicated as contributions to this part of the pathology of the fever." (*Op. cit.* p. 107.)

Except in respect of the eruption I adhere to every

part of my description of the Edinburgh Epidemic Fever of 1843-44 as published in December, 1843.

PUTNEY, LONDON;
March, 1849.

II.

CHOLERA.

I. Notes on the Pathology and Treatment of Cholera. [*From Association Medical Journal, 11th November*, 1853.]

II. Speech on Cholera: Extract from the Report of a Discussion on Cholera on 6th October, 1849, at the Westminster Medical Society. [*From the London Journal of Medicine for November*, 1849, *p.* 1074.]

III. Cholera-collapse: how some Recoveries take place.

NOTES

ON THE

PATHOLOGY AND TREATMENT

OF

CHOLERA.

NOTICE TO THE READER.

TWENTY-ONE years have elapsed since this essay on Cholera was first published. During that period, I have continued to feel the immense difficulty of the subject; but maturer study and increased clinical experience have not caused me to alter my views, except in respect of some of the minor details of treatment. Under these circumstances I venture to reprint a second time the subjoined imperfect "Notes on the Pathology and Treatment of Cholera."

PARIS; 1st March, 1874.

PREFACE.

THE following pages are, with the exception of a few additional paragraphs and some verbal alterations, reprinted from the ASSOCIATION MEDICAL JOURNAL for 11th November, 1853. They contain the substance of a paper read before the Medical Society of London, on the 5th of the same month—the leading ideas of which were previously stated in a speech delivered in the Westminster Medical Society in the course of a discussion on Cholera on the 6th October, 1849.

LONDON; 1st March, 1854.

CONTENTS.

I. MANNER OF STUDYING CHOLERA.

II. DIAGNOSIS OF CHOLERA.

III. OBSERVATIONS MADE BY THE AUTHOR DURING PART OF THE EPIDEMIC OF 1848-49.

IV. PATHOLOGY OF CHOLERA, INCLUDING ITS MORBID ANATOMY.

V. TREATMENT OF CHOLERA.

PATHOLOGY AND TREATMENT OF CHOLERA.

THE following Notes are not offered as a complete paper on CHOLERA: they are simply intended to present, in a condensed form, the leading pathological and therapeutical opinions adopted by the author after a careful study of the disease in books and at the bedside. The views which are unfolded are the same as those which I advocated anonymously in the *London Journal of Medicine* for 1849, and in a speech delivered at the Westminster Medical Society, on October 6th of the same year.

To give some degree of method to the remarks, they are arranged under the following heads:—

I. MANNER OF STUDYING CHOLERA.
II. DIAGNOSIS OF CHOLERA.
III. OBSERVATIONS MADE BY THE AUTHOR DURING PART OF THE EPIDEMIC OF 1848-49.
IV. PATHOLOGY OF CHOLERA, INCLUDING ITS MORBID ANATOMY.
V. TREATMENT OF CHOLERA.

I. MANNER OF STUDYING CHOLERA.

The majority of authors who have treated of cholera, have drawn their descriptions too exclusively from the more appalling forms of the disease, and have too generally spoken of the diarrhœa concurrently prevailing—especially at the beginning and at the decline of an outbreak of severe cholera—as if it were a malady different in kind as well as in degree. To this obvious but common error must, in a great degree, be ascribed the unsatisfactory nature of the literature of cholera, and the perplexing contrariety of opinion which prevails among practitioners as to the pathology of the disease and its appropriate treatment. The phenomena of aggravated cases, and the appearances found in the bodies of those who died, have unfortunately formed the chief materials out of which theories have been constructed, and the natural history of the disease, the true key to the mystery, has been nearly neglected; or, in other words, adequate attention has not been bestowed upon the natural course of those cases which, from being essentially mild in degree, or in some other way favourably circumstanced, terminate in recovery without much, or without any, medical interference. In all diseases, very much is to be learned by the minute study of simple and uncomplicated cases which have not been disturbed in their career by any treatment; and assuredly no advance can be made in rational medicine by those who take their notions of what a disease is only from books, or from their own observation of patients with whom active measures have been adopted. Therapeutical experiments must be jealously corrected by the observation of simple cases which have

been mainly confided to nature ; and *recoveries* must not be promiscuously set down as *cures*. There are unfortunately some among us who are very prone to commit this error, while others, by pursuing no plan of treatment upon clear principles, or with the necessary firmness, become sceptical of the therapeutical resources of medical science, and yet never suspect that their scepticism is mainly the fruit of their incapacity to furnish for themselves legitimate data. Cherishing, however, as I do, a strong faith in the efficacy of many of the curative means employed in practice, I equally hold that one of the best ways of learning the skilful use of these means, is patiently to watch and study the phenomena of spontaneous recoveries. It is a species of investigation which is replete with benefits to all concerned. By pursuing it, the practitioner obtains and secures for himself a stock of knowledge which neither the theorist of the closet nor the empiric of the day can ever wrench from him or deteriorate, and which will impart to his practice an amount of well-founded self-confidence and success which could in no other way be obtained.

Numerous illustrations of the truth of these remarks readily suggest themselves, and probably no one has any objection to offer to them, except that they are very prosy and common place : nevertheless, if we turn to the current medical literature, we find that they are practically dirsegarded by some of our most ready writers. They are too plain and homely to win the favour of those ambitious men who yearn after brilliant theories, and seek to captivate the world by special systems and new formularies. But while the evils which flow from the want of adequate attention being paid to the natural

history of disease are conspicuous, the advantages of this study are equally striking in the improved treatment of many diseases—among which may be mentioned some of the most formidable disorders, such as pneumonia, tuberculosis, syphilis, and fever.

Thousands of cases of scarlet fever recover almost spontaneously, while others are obviously saved by the skilful use of remedies; but, on the other hand, not a few are tremendously rapid in their fatal career, and proclaim to the eye of experience, almost from the moment of seizure, that a sentence of death has gone forth, and that the hours of the victim are few and may be numbered. Now, although epidemics of scarlet fever differ much from one another in severity and in other respects, yet we often meet with the mildest and the most terrible cases occurring simultaneously or consecutively even in the same house. We are taught by the frequency of such occurrences that both classes of cases, though strikingly different in many of their phenomena, are the results of one morbid poison, and that the diversity of effects proceeds not from a diversity of poison, but from a difference in the quantity imbibed and in the condition of the recipient. It is equally reasonable to regard tractable cholerine and intractable cholera as pathologically the same, and therefore, of course, to include in the same category all the cases which are intermediate between these two extremes. If this rule were adopted, the mortuary statistics of cholera, as published in the newspapers, would be more truthful and less appalling.

If we hope to learn from nature, we must interrogate her fairly. If we wish to discover the essential character of any epidemic—be it of measles, of scarlatina, of cholera, or of any other disease—we must not only follow the rules which

have been above stated, but we must also proceed a step further. We must observe and study the condition of the whole population during a given period and within a given district; we must, in particular, trace out and record the characters by which the maladies of all the sick persons are characterised; and we must not begin by adopting an ideal standard of what are the essential features of the disease to be investigated, and then limit our observations to such instances as fall within this ideal boundary. Is it not by adopting foregone conclusions as to the very essence of the questions to be solved that even good observers have accumulated materials too faulty to be safely used in the construction of opinions? But however painstaking and conscientious a single observer may be, he cannot singly collect all the materials for a complete history of an epidemic, and this is a fact too commonly forgotten. Isolated observers can do little for epidemiology, compared with what might be accomplished by district societies of medical observation, in which the members adopt by mutual consent an uniform plan of treatment and of reporting. If such societies were now to be extensively formed and carefully organised, a mass of trustworthy data would be obtained, and there is no other method by which many disputed questions relating to cholera, and epidemics generally, can ever be settled.

Painfully impressed with the imperfections of the following observations, I have ventured to introduce them by these prefatory remarks. My little contribution of facts may be useful, apart from all theory; and, while I freely state the opinions which I have formed, I avow with equal frankness my conviction that, notwithstanding all that has been written regarding cholera, sufficient data do not yet

exist to entitle any one to feel quite confident that his opinions are built upon an unassailable foundation.

After reciting a chapter from my own experience, I propose to state briefly the opinions which I have been led to adopt and which I have based upon that experience, in conjunction with a tolerably extensive course of reading upon the subject of cholera.

II. DIAGNOSIS OF CHOLERA.

The diagnosis between English cholera and Asiatic cholera has engaged the attention of many writers; but I agree with Dr. Knox in thinking that it is "useless and impracticable" to discriminate between them. That judicious author well remarks:—"No means of discrimination are generally known, or we should not hear one practitioner saying that he could see no difference in the diseases except in the number of the cases; and another, that he should be of opinion that he had been treating a case of Asiatic cholera had that disease been present in the country." [Knox, Alex., M.D., *On Cholera*, Dublin, 1849.] Slight cases of cholera, like slight cases of all diseases, are the least easily recognised, and when cases of cholera occur sporadically they are doubtless very often mistaken as to their nature, even when they are to a certain extent correctly treated. On the other hand, severe cases generally present certain symptoms in combination, which leave little difficulty in determining their character. The symptoms to which I refer, are vomiting, serous purging, cramps, prostration, coldness, collapse, and suppression of urine. I have, however, seen every one of these symptoms con-

currently present in the same patient upon three different occasions, the disease being decidedly not cholera, but probably disease of the stomach, similar in character to the uterine disease known by the name of cauliflower excrescence. The gentleman to whom I refer is subject to severe attacks of pain in the stomach. Some time ago, after much agony, at last alleviated by the external use of belladonna, he vomited several quarts of fluid greatly resembling dirty water, after which he nearly fainted, became extremely prostrate, and then suffered great pain from cramps in the legs. By the application of warmth externally and of turpentine fomentations to the extremities, the alarming coldness of the body was removed within an hour, and he then passed twelve hours without any fresh symptoms to excite alarm. He then, however, became faint, cold, and nearly blind. In these circumstances I was summoned. I had left him an hour previously tolerably well; I now found him collected but deadly cold, the countenance was haggard, and he complained of almost total loss of vision, painful cramps, and utter prostration. After some hours of anxious treatment, in which the external application of warmth and stimulants, and the internal use of sulphuric acid, were the predominating feature, his almost suspended animation returned. The collapse now described was not ushered in by vomiting or purging, but some hours after reaction had been established, he discharged from the stomach by vomiting several quarts of a fluid, resembling cream in consistence and tar in colour. This was undoubtedly blood which had been poured into the stomach immediately antecedent to the time of his rapidly becoming affected with the symptoms simulating the cold stage of cholera.

In this instance (without a previous knowledge of the history of the case) its character might, and indeed must have been mistaken. This case strongly impressed me with the truth of the opinion which is generally though not universally held, that the collapse and spasm of cholera are not usually, if ever, the direct effects of a morbid poison, but the secondary consequences of the serous hæmorrhage resulting from the action of a morbid poison.

A few days before the occurrence above described, my friend Dr. B. W. Richardson had under his care a man who suffered in a very similar way, though the case was not one so liable to be misunderstood. The following is the substance of notes of the case given to me by Dr. Richardson.

S., aged 65, was seized while out of doors on the 27th of October, 1853, with pain in the stomach, followed by the vomiting of a large quantity of dark coloured blood mixed with clots. He went home and kept quiet, but on the following morning immediately after breakfast, the vomiting having returned with increased violence, he came to Dr. Richardson. He was very cold and faint, his pupils were dilated, his face was pinched, and his voice was weak. There was likewise at intervals involuntary jerking of the limbs. He was ordered to go and keep himself warm in bed, and to take every six hours ten minims of aromatic sulphuric acid in an ounce of the decoction of cinchona. He continued under this treatment for three days, without any return of the symptoms ; and he is now perfectly restored.

The collapse of cholera may be closely imitated by the secondary consequences of the serous purging induced by elaterium and other drugs in inordinate doses.

I have seen scarlet fever patients become collapsed, and

die rapidly from sudden and profuse serous purging. Death in typhoid fever likewise occasionally happens in the same way, and I am not sure that in such cases during life the diagnosis can be made, except by determining the presence or absence of the eruption. Mr. Grove of Wandsworth has published in the *Association Journal* of 25th November, 1853, under the name of cholera, a case in which, after severe symptoms of cholera had subsided, the typhoid fever eruption appeared. Such cases ought rather, I think, to be spoken of as cases of typhoid fever with choleraic symptoms. In typhoid fever, gastritis, and enteritis, there is often a series of symptoms similar to symptoms of cholera.

From the preceding remarks, it is very evident that other causes than the cholera poison may induce collapse and spasms similar to those which characterise the cold stage of cholera. The differential diagnosis has, in fact, repeatedly been a matter of difficulty both with the medical jurist and the practical physician. The way to avoid error is to investigate thoroughly every circumstance, and to bear in mind that different causes may, and often do, produce similar symptoms.

III. OBSERVATIONS MADE BY THE AUTHOR DURING PART OF THE EPIDEMIC OF 1848-49.

Before proceeding to speak of cases of disease, it may be well to give a short account of the localities within which they occurred.

The field of observation embraced the suburban parish of Putney, part of which is close to the Surrey bank of the

Thames, and contains some insalubrious localities, although, speaking generally, it is a remarkably healthy district. Towards the close of 1848, I was one of a committee of parishioners to whom was intrusted the domiciliary visitation of the whole parish. The following is a verbatim copy of the report given into the Local Board of Health by the sub-committee which visited that part of the parish described as "the Lower Richmond Road, commencing at Windsor Place, taking in Putney Lower Common, right and left, to the extremity of the parish, where it joins the parish of Barnes." Some parts of Putney Lower Common are close to and almost level with the river Thames.

REPORT.—We have visited every house in this district, and have to report that we find it on the whole in a healthy state. But, although we have pleasure to state so much generally, we feel bound to express our surprise that that part of our district on the Common, to the right of the Lower Richmond Road, should be so, for we find the cottages there, or most of them, overcrowded with inmates. Some contain little or no furniture in them, and have from five to seven persons living in two rooms. Dirty, badly clothed, shoeless, and miserably poor boys and girls sleep together of greater age than is prudent. There were many children running about the Common. In many cases the mothers and fathers were out at work, and the children left in the care of the eldest girl, perhaps about ten years old, without education. No clergyman visits the neighbourhood, nor any members of the Putney Visiting Society. The premises are in a bad state of repair, and the poor persons are much exposed. There is one open privy assigned to ten houses, of which all the tenants complain. A general sink is in the centre of these houses, which occasionally gets stopped

up, and then the water lies on the surface, opposite, and near to the doors of the houses.

"These ten houses form a kind of square. To these, and fourteen other houses, in all twenty-four, there is a good well; but it is open and exposed, and is dangerous for the children. In this small locality we think there are more children than in any other place of its size within our recollection.

"In this place some privies are good, and others bad. The same remark applies to the drains. Some tenants have no drainage, and the wash-water is thrown from the houses upon the Common. The whole of this property is so situate as to be capable of drainage at little expense. As the parish holds houses here, we recommend this to be done, and that the owners of the adjoining property be required to join in the expense of making an improvement generally, so as to make the spot more conducive to health than it now is. There is a dung-heap here, which must be removed. Independently of the injurious effects of a quantity of dung, the heap tends to stop the soil of a privy from taking its proper drainage course: this drain or ditch requires cleansing.

"There are a few swine in the neighbourhood, but we find no accumulation of dung, nor any annoyance arising from pigs, except in the case of a Mr. P., after mentioned, whose privy and pigstye are in too confined a spot, and too close to several small tenements, to be wholesome.

"The above remarks apply specifically to the spot before named: and the other parts of our district which are not particularly noticed must be understood not to require to be reported on.

"The owners of the above property are the Parish, Mr.

F., Mr. S., and Mr. W.; and an account of the objectionable parts (in connexion with the number of inmates more particularly) is subjoined.

"PARISH PROPERTY. Tenant G., seven persons in two rooms, seven feet high. Privy in bad condition. No drain.

"Tenant J. S., seven persons, five children—none at school. Eldest son, twenty; girls, ten to seven. Girls sleep with mother and father. Two chairs and one table. Boys sleep on floor. Room dilapidated. Privy bad. Children healthy. Good drain.

"Tenant J. R., wife, and three children. Boy nearly fifteen. Two girls—aged ten and thirteen. Girls and boy sleep together. Privy wants emptying. The house is otherwise very clean.

"Tenant W., wife, and five children: two rooms: place in good order: but the tenant should acknowledge a tenancy. It appears the land belongs to the Parish, but the tenant built the house, etc., by permission.

"Tenant T. E. Very clean and good.

"Tenant Mrs. M. She and her son live together in one room. She is eighty-three, and he forty-four. Drains right, but privy wants emptying, and she cannot afford to do it. [N.B. This tenement is not with the others, but is situate to the left of the Lower Richmond Road, opposite Langshaw Lodge, and is merely spoken of here to keep the Parish property under one head.]

"MR. F.'S PROPERTY. It consists of ten houses in a kind of square: in the centre are two sinks; and at the end, in a corner, one open privy.

"Tenant M., wife and four children. Three rooms.

"Tenant L., wife and five children. Three rooms.

"Tenant R. and wife: six children under eleven. Three rooms.

"Tenant H., wife and two young children.

"Tenant W., wife and five children. Eldest son sixteen. Eldest girl fourteen. All sleep in one room, but in two beds. The man out of work. A most miserable family.

"Tenant S., wife and ten children; but six only at home, from eleven to seven years. Two rooms and three beds. All sleep up stairs. Caroline, eleven years, sleeps alone: five boys together: and husband and wife together.

"Tenant W. and wife. Three rooms. Roof bad, and wet comes in. Woman in delicate health.

"Tenant Mrs. C., and four inmates: three adults and two infants.

"Tenant W. S., wife and five children. Eldest boy at home is eighteen, and eldest girl thirteen: only two rooms. Mother and father and a little boy of three years sleep together in one bed: in another bed in the same room the other three boys and girl sleep.

"Tenant C. and seven inmates. They use the general privy. No drain: no sink: they throw out the waste water before the door on the common.

"Mr. S.'s Property. Tenant P., wife and two children. Plenty of room; and he underlets. The privy is badly constructed, as is also the pigstye. There is one pig in it. The stye is covered in, but is too close to three or four tenements; and of this all the inmates complain.

"This person's dung-heap is away from the premises, but close to Mr. S.'s other property, near L.'s, after mentioned, the soil of whose privy is stopped by it. It should be removed and the drain or ditch dug out, then

there would be a fall, and all would go off clear. This person (P.) is a nightman, and has been known to deposit night-soil here, and some few months ago was made to remove it. Such acts as these should be narrowly watched.

"Tenant B., wife and child. These have all requisite conveniences, with a privy for this and the next named house; but the premises are too close and too offensive to this and the other tenants close by.

"Tenant T. and son. The preceding remarks apply here. The houses join.

"Tenant L., and wife only. No sink: no sewer: wash water thrown on common. There is a privy conveniently placed at the end of the garden with a fall; but P.'s dung-heap (before named) prevents the soil from being carried off. This house does not adjoin the foregoing houses.

"Mr. W.'s Property. Tenant K., wife and child. Tenant R., wife and two children. Tenant D., wife and a little boy.

"The above occupy three tenements in a line with L.'s They are in want of a drain to connect it with a ditch behind at the end of garden which is well situated. Their privies are at the end of the garden. The well is away from the houses, overhanging the ditch, which requires digging out; and then, when P.'s dung-heap is removed, the soil would go away in all probability. All complained of P.'s dung-heap, which makes their privies less comfortable.

"There are other houses in this locality not belonging to the foregoing owners. They need not be remarked upon, except:—

Tenant J. R., wife and four children. Three rooms. Privy requires attention. They complain of it because

their overflow is caused by P.'s privy being badly constructed and out of order. They back each other.

"Tenant B., wife and five children. The privy is in too confined a place, requiring more air. It leads out of B.'s workshop. He is a carpenter. It smells, and must be bad for him who is necessarily confined in it for hours together.

"G., a gardener. He should remove his dung and decayed vegetable matter to another part of his premises, and he has much space. His heap is offensive and unwholesome to Mrs. T. and Mrs. C., behind whose premises it is.

"Wm. S. Privy and drain connected with it were bad. He is clearing them out. There is another drain farther off which should be connected with the preceding. The tenant justly complains of it.

"Mr. H. and Mrs. W. Mr. C. owner or mortgagee. These houses run in a line with Mr. S.'s. There requires a drain to be made here. The houses must be very unwholesome. There is a considerable quantity of water under the sitting rooms, and we learn it remains. It wants to be let off. There is a drain close by with which it can be easily connected. It would seem as if these rooms were built over a ditch or fall of water from adjoining grounds. It may be a spring.

"Tenant G. Owner M. In two rooms on the ground floor, he, his wife, and five children live. All sleep in one room. They seem miserably poor. The husband and wife were out at work. He is a gardener with M. It seems a damp place in the winter, but is very open, and we saw no nuisance, but extreme poverty." [Then follow the signatures.]

Putney was at the period referred to and still [1853] is extremely ill drained. Nevertheless, from the comfortable circumstances in which most of the inhabitants are placed, and the general absence of excessive crowding, it is a healthy place, and the description which has just been given of the Lower Common is not applicable to the town, nor to the parish generally. I must state, however, that in 1849 (at the date of the report) some houses even in the best parts of Putney formed notable exceptions, among which I must include my own residence, the drainage of which had never up to that period been attempted, except by a series of cesspools. In my house two cases of cholera occurred, and although both recovered, one got well after all hope had been abandoned. Putney Heath and the adjoining neighbourhood are famous for free and bracing air; and, lying far above the range of the river vapours, ought to present circumstances the most favorable to health. At the period, however, to which I refer, ancient unemptied cesspools were in close contiguity with the mansions of the affluent; and in some instances these dangerous depôts of filth still [1853] remain, saturating the surrounding soil with their exudations.

Fulham, on the Middlesex bank of the river, and only joined to Putney by a wooden bridge, is even worse drained than Putney. At the northern extremity of the village, on most days of the year, the air is charged with a heavy stink. I have heard it said that there is nothing unwholesome in this smell, but I cannot help thinking that the causes which generate it likewise give rise to unwholesome emanations. Around the episcopal palace there is a moat or great tidal ditch, which, in its circuit, comes up pretty close to the houses on the western side of the High Street

and to the cottages in the road leading to the Fulham fields. This moat has existed for about six hundred years, and unless the commissioners of sewers attack it as a dangerous nuisance it is likely to remain for six hundred years longer, for there is no one sufficiently interested in filling it up. In fact, it is by occasionally discharging its contents through the Fulham sewers that the imperfect drainage of the town is accomplished.

The subsoil of Putney Lower Common and of Fulham is a stiff clay, but a great part of the town of Putney and of Putney Heath is situated on gravel through which a large fall of rain rapidly disappears.

All the patients referred to in the following notes were in comfortable circumstances, and though some of them were in a humble rank of life, they had the full benefit of efficient domestic attendance. From this circumstance, combined with the early period of the disease at which I was sent for, the cases afforded great facilities for studying its natural history, and for successfully applying remedies.

Having now sufficiently glanced at the characteristics of the locality about to be referred to, it becomes necessary to describe the cases of disease which were under treatment during the period specified. We cannot place truthfully on record the constitution of an epidemic by simply detailing characteristic cases ; it is necessary to bring into some degree of prominence every description of disease which has come under notice during the period to which our history refers. By doing this carefully and faithfully, and by such means only, can we correctly communicate to others the facts which we have observed and upon which our generalisations are founded. Our descriptions, it is true, may in the estimation of some be considered redundant and overloaded,

but in epidemiological inquiries it is safer to be prolix than meagre: in the one case, the reader is able to judge for himself, but in the other, he is either unfairly entrapped into conclusions, or is prevented from fully testing their soundness by the light of his own reason.

These considerations induce me to mention, categorically, three groups of cases which particularly arrested my attention during the epidemic of 1848-49, all of which distinctly partook more or less of the prevailing epidemic influence.

The following is a summary description of the three groups of cases now referred to:—

First Group. *Quotidian fever*, or febricula, with diarrhœa which was not at first serous. Hepatic, splenic, and gastro-enteric symptoms were in some cases prominent, and in others absent. Cases of this group may be called *epidemic diarrhœa*.

Second Group. Similar to the first group excepting that the purging was always serous, and that the type was either remittent or irregularly intermittent. The secretion of urine was scanty or absent. Cases of this group may be called *cholerine*.

Third Group. The severer cases of the second group passed by insensible gradations into the third; the distinction between the aggravated cases of the one and the milder cases of the other being purely arbitrary and one of degree. The cold stage was sudden and protracted, and passed into collapse. This we term *cholera*.

In the above division, discharge from the bowels is made the basis of classification, or, at least, one of its essential features. This, however, without explanation, might mislead, and I therefore subjoin a more detailed method of

grouping, which enables me to embrace every case of acute disease which came under my care within the period embraced, excepting a case of menorrhagia. Of neuralgia, in a variety of forms, I had numerous cases; but the predominating types were ague and neuralgia of the feet. Of the latter, I saw three cases in September 1849; and I have had only one since that period. I felt it quite impossible to resist the conclusion that every case of disease then prevailing manifested more or less the characters of periodicity, associated with neuralgia or choleraic symptoms. At the commencement and close of the cholera epidemic, neuralgia was common, but when the epidemic was at its height, cholerine and cholera seemed to swallow up all other forms of disease.

To present my meaning clearly, I would say that during the height of the epidemic, the choleraic type was impressed on all diseases, or that there was nothing to be seen except choleraic disease; whereas, at the advent and subsidence of the epidemic, the neuralgic type was distinctly observable, and became gradually displaced by serous diarrhœa, and at last by algide cholera.

During the epidemic, I recorded the following well-marked

GROUPS OF CASES.

1. Quotidian fever and quotidian neuralgia—with diarrhœa as a subordinate symptom.
2. Quotidian, tertian, and irregular neuralgia—without the accompaniment of diarrhœa.
3. Quotidian fever, with gastro-enteric and hepatic symptoms—with colic rather than diarrhœa.
4. Dysentery.

5. Remittent and intermittent serous diarrhœa, cramps, and prostration (cholerine).
6. Cholera in the first degree, the algide stage being imperfect and transient.
7. Cholera in the second degree, the algide stage being complete.

I feel quite satisfied in my own mind that there is nothing fanciful or overstrained in this grouping of cases, though I willingly admit that in several instances it was only by dint of minute investigation that I could obtain evidence of the occurrence of intermissions and remissions at regular periods. If a few cases be well observed, the truth of my statements may often be corroborated in the future; but of course by those who have hundreds and thousands of cases to deal with, no correct data can be established regarding the affinities, varieties and course of such a pestilence as cholera.

I subjoin abridged reports of some choleraic cases which were observed with great care, and reported many times daily at the time of their occurrence.

Case 1.—Mrs. P., aged 30, residing at Holcrofts, Fulham. On the night between August 31st and September 1st, 1849, she was seized with diarrhœa and cramps in the legs, for which she took repeated doses of a camphor-chloroform mixture which I had prescribed for general use in the family, to be used in such emergencies. She felt so much better on the 1st, that she did not think it necessary to have medical advice. On the 2nd, she continued to improve, and considered herself nearly well when she went to bed. On both of these days, she had sudden cold fits. About 6 o'clock in the morning of the 3rd, the characteristic symptoms of cholera set in with great impetuosity and

suddenness. She remained in bed some time, unable to make known her condition. I was called to see her at 8 A.M., and found her vomiting and purging incessantly, and pulseless. She had a senile, haggard expression of countenance. The legs were quite cold, as were likewise the arms, face, and abdomen: the thorax was the only part of the body approaching to the natural temperature. The lips and tongue were also cold, and the lips were livid, as was likewise the countenance generally. The intellect was quite clear; she answered questions with great precision, though she articulated with some difficulty, and spoke in a feeble and sepulchral tone of voice. She had cramps in the calves of the legs, but in no other part of the body. There was an uneasy feeling at the præcordia, with a good deal of pain in the lower part of the bowels. She complained of excessive thirst. During the two hours which elapsed before I saw her, the quantity of fluid discharged by vomiting and stool was quite enormous. The discharge per anum had no fæculent odour and entirely consisted of a fluid resembling the washings of raw meat. A very few shreds resembling flocculi of mucus were seen floating in it. What she vomited was paler in colour, and was quite homogeneous: it a good deal resembled slightly dirty water. She stated that she had not separately passed any urine for twenty-four hours, but might have passed some with the stools. A grain of solid opium was administered in the form of a pill, sinapisms were applied to the calves of the legs, and the lower two-thirds of the body were enveloped in a blanket wrung out of very hot water. She was cautiously kept in the horizontal position, and dry heat was applied to the upper part of the body, to obviate the fatigue which would have been inseparable from removing her chemise. Two ounces of

brandy were at the same time administered. In ten minutes from the commencement of this treatment, the pulse returned and gradually increased. She was ordered to take a teaspoonful of the following mixture every hour:

℞ Tincturæ catechu, ʒij;
„ opii, ♏xl;
„ cardamomi co. ʒj;
Mist. camphoræ chlorof., ʒss;[1]
„ acaciæ ad ℥j. M.

At 10.45, Dr. James Bird saw her with me. The following was her condition at that time. There was considerable præcordial tenderness, which extended to the umbilicus and along the course of the colon. The respirations were 40 in the minute. The pulse was 100, feeble, and labouring. Considerable tenderness existed at the nape of the neck, accompanied with oppressed respiration and severe headache. The warmth of the body is maintained with great difficulty by means of sinapisms and bottles of hot water. The mixture is continued. A liniment of turpentine and pyroligneous spirit is ordered to be applied to the epigastrium and abdomen, until free redness be produced—also to the nape of the neck, and along the spine. She is allowed to drink plentifully of soda-water, to each tumbler of which two

[1] The following is the original formula of Messrs. T. and H. Smith of Edinburgh for preparing the camphor-chloroform solution.

℞ Chloroform. ʒj;
Camphoræ, ʒiij. M.

The camphor is perfectly dissolved, but in consequence of the volatility of the chloroform, it is advisable to add another drachm of this fluid. Great care must be taken in dispensing to drop the camphor-chloroform solution into the mucilaginous or other vehicle, without allowing it to come separately in contact with the vessel, as it would then become a crust of camphor. Mixtures containing the camphor-chloroform solution require to be shaken before the dose is administered.

teaspoonfuls of gin are at first added, but afterwards omitted, as the heat of surface increases.

2 P.M.—There has been some slight return of the vomiting, and four stools have been passed of the same character as in the morning. There is less abdominal tenderness, and a fair degree of heat of surface.

3 P.M.—There is more warmth in the skin: and the body is bathed in a profuse perspiration. During my visit there was some vomiting, and a copious discharge from the bowels, similar to that previously described. The interval between the doses of the camphor-chloroform mixture was increased to two and a half hours.

8 P.M.—The condition (now and at 5.30) was very similar to that at 3 o'clock: there had been several stools, and some vomiting. The last motion contained more flocculi than had hitherto been observed; in other respects it possessed the same characters. The abdominal pain was somewhat relieved by the liniment, but it returned. The liniment was re-applied. She took the three following pills.

℞ Quinæ disulph., gr. vj;
Calomelanos, gr. iij;
Opii, gr. ss;
Ext. Gent., q. s. M. fiant pil. iij.

Half of the following astringent injection was administered, and the rest was ordered to be given in two hours, if required:

℞ Plumbi acetatis, ʒj;
Tinctur. opii, ʒiss;
Decoct. oryzæ, ʒviij. M.

4th, 9 A.M.—She has passed a tolerable night. The other half of the enema was not administered, there having been no alvine discharge. There has been no urine passed. She has been in a profuse perspiration since last report; and, indeed,

since between 2 and 3 P.M. yesterday. She has had occasional sudden and very transient attacks of nausea, generally accompanied by a temporary augmentation of the perspiration, which has then been seen to stream down her face in greater abundance. The tongue is clammy and furred, except at the point, where it is dry and red. The pulse is 100 and the respirations 30 in a minute. She has finished the camphor-chloroform mixture prescribed at the first visit. There is great prostration, which has been relieved by each dose of this mixture.

2 P.M.—About 11 A.M. she became much flushed, and complained of intense headache, with pain in the muscles of the back of the neck and some flying pains of the limbs. The perspiration has continued unabated. The pulse is 130. The breathing is a good deal oppressed. At half-past 1 P.M., she passed between one and two ounces of very high-coloured urine.

℞ Quinæ disulph., gr. iij;
Calomelanos, gr. vj;
Ext. gent., q. s. M. fiant pil. ij.

One pill to be taken immediately; and the other in two hours if the bowels have not been moved.

6 P.M.—She has taken both the pills but has had no stool. She has, however, passed fully a pint and a half of urine, which, though dark in colour, is not so dark as that mentioned in the last report. On examination it is found to be acid, of sp. gr. 1022·5: it lost much of its dark colour on the application of heat, and also became momentarily clearer, when there were seen, as the heat was continued, milk-coloured filaments in abundance. The addition of nitric acid did not seem to produce any change, but on boiling it with liquor potassæ, there seemed to be an aggregation of

the filaments or flocculent particles into larger bodies, with a clearer appearance of the urine.

According to the report of the nurse and of the patient herself, a marked improvement speedily followed the discharge of urine. She felt much better and drank a tumbler of cold beef-tea, being her first request for that liquid during the day. She had drunk a large quantity of soda water. Her thirst was now much abated. It is necessary to note that during yesterday, last night, and this forenoon, she has drunk many quarts of ordinary spring-water and soda water. At present, the perspiration continues. It is reported to be more abundant than during the height of the febrile paroxysm some hours ago. There is still a good deal of headache. The pulse is 90 and the respirations 26 or 28. Both pulse and respiration vary considerably from slight causes, as moving in bed, or attempting to raise her head on her pillow.

10 P.M.—There is decided improvement in all respects. She became very faint when her chemise was being changed. At about 9 P.M., she had a scanty black, fluid, and somewhat fæculent motion. There has been no more urine passed. On sitting up in bed to take a little arrow-root with wine, she was seized with faintness, and had some vomiting.

℞ Opii, gr. ¼;
Camphoræ, gr. ss;
Quinæ disulph., gr. iss;
Calomelanos, gr. ij;
Extr. anthemidis, q. s. ut fiant pil. ij.

To be taken immediately.

℞ Liquor. quinæ amorph., ♏xv;
Ferri sulphat., gr. ¼;
Aquæ, ʒiss.

To be taken in the morning.

5th.—She passed a good night: the medicine was taken as directed, and she had a few spoonfuls of thin arrowroot with wine at intervals during the day. In the morning early, she was described as having awoke pretty cool and comfortable; but between six and seven she became flushed, and had a good deal of headache till noon. When I saw her at eleven, the pulse was above 100, and the breathing laboured; she was also restless and uncomfortable, but this state did not long continue. She had a black, tarlike, copious stool in the afternoon, after which there was some temporary exhaustion, speedily relieved by a little wine. The quantity of urine passed was excessive; it had now a pale straw colour. The pulse, at eight in the evening, was 54. The perspiration has continued. There has been a good deal of lachrymation.

℞ Calomelanos, gr. vj;
Quinæ disulphat., gr. xij;
Pulv. opii, gr. iij;
Camphoræ, gr. iv;
Ext. anthemidis, q. s. ut fiant pil. vj.

One of these pills was taken at 4 P.M., and another at 8 P.M.

6th.—At 9 P.M., the four remaining pills had been taken. Towards the afternoon the perspiration began to moderate, but it has never ceased, and still continues excessive. The pulse is 78, irregular, small, and compressible. The respirations are 32. She has not had a stool to-day, but has passed an abundance of urine. She seemed extremely depressed both in body and mind, and her necessary movements in bed caused much muscular pain. To have a tablespoonful of wine in negus every hour.

7th, 9 A.M.—Seven ounces of wine were taken during the night; which was the quantity I had said was not to be exceeded. I found that the last dose had been given two

hours before my visit, and that, from the longer interval, she had become cold on the surface and alarmingly depressed. During the regular continuance of the wine, her condition was reported to have been more favourable. I directed her to have a tablespoonful of wine every second hour, and the alternate hours some veal broth or arrowroot—occasionally substituting the one for the other.

To take one of the following draughts every three hours.

℞ Spir. ætheris, ʒss;
Mist. camph. chlor., ℥v;
Tinct. cardam. comp., ʒss;
Mist. acaciæ ad ʒj. M.
Mitte tales iij.

The pulse is 70, irregular and feeble. The respirations are 40, catching and occasionally sighing.

3 P.M.—Two of the draughts have been taken, and the wine, arrowroot, and veal broth given as directed. She is much better. The pulse is 80, regular, and firmer than in the morning. The surface is warm, and bedewed with a gentle perspiration. Two teaspoonfuls of castor oil have now been administered.

9.30 P.M.—There has been great improvement since the afternoon, especially since the bowels were moved about two hours ago. The stool was of the consistence of thickish mortar—not formed—of an inky blackness, with some patches of dark green. There has been much less urine passed to-day than yesterday, and there has been comparatively little sweating. To take a draught in the morning, similar to those prescribed above, and a pill of citrate of iron and quinine.

The subsequent history of this case it is not neccessary to detail. Recovery was gradual. The use of alcoholic

stimulants was freely resorted to and seemed essential to prevent sinking. During convalescence she took—and apparently with great advantage—the citrate of iron and quinine.

Case II.—C. U., aged 2 months, residing in Putney Lower Common, was taken ill on the morning of the 18th August, 1849. She was violently sick, and refused the breast, or food of any kind, and before I saw her at noon had had a great number of stools. The first towels which had been used contained some matter like very soft clay-coloured mortar, but those in which the latter evacuations had been passed, though soaked by them, were hardly discoloured in any way. When I was in the house she passed a large quantity of inodorous and almost colourless fluid from the anus. A mixture of chalk, catechu, and opium was prescribed, and a little brandy in beef-tea was directed to be given *pro re natâ*. In the evening the child was somewhat better. On the following day she was again worse, but the discharge was again moderated, and was for some hours arrested, by means of small doses of acetate of lead and Dover's powder. On the 20th she seemed improving. On the 21st, about 9 A.M., she had a rapid succession of copious fluid motions, and from this time, up to death at 7 A.M. on the 23rd, being a period of forty-six hours, she had no discharge either from the bowels or bladder, and remained in a state of absolute collapse, with the eyes open, and sunken, and the countenance haggard. The alteration in the countenance was described to me as having taken place quite suddenly. By means of the diligent use of hot fomentations, the temperature was maintained at the natural standard throughout the whole of this time, and small doses of beef-tea and brandy were administered every half hour as long

as the power of swallowing remained. Shortly before death, the movements of the hands, arms, and legs, were very active, and continued long after the surface had become quite blue. I was not present when the infant died, and those who were in attendance could not exactly fix the moment at which life ceased, for after they had believed that death had taken place, notable movements of the arms were observed.

EXAMINATION OF THE BODY, 9 hours after death. *External Appearance.*—The countenance was haggard, the eyelids open, and the eyes sunken. The fingers were blue, and there were extensive marks of ecchymosis on the posterior aspect of the trunk, but in no other part of the body. In some degree, the extremely collapsed appearance had disappeared since death, and the fingers were certainly not so blue as during life. There was a total absence of cadaveric rigidity in any part of the body.

Head.—The vessels of the pia mater were considerably congested; but not more than is usual in deaths from very many diseases. The brain was of soft consistence. There was no effusion under the arachnoid or into the ventricles.

Chest.—On opening the chest, a considerable layer of fat was found in the integuments. The lungs did not collapse; the left lung overlapped the heart. These organs presented at first sight a perfectly white appearance. The upper portions of the superior lobes were œdematous, but not in any degree emphysematous: they were bloodless. The lower portions of the superior lobe were pallid and œdematous, but not entirely destitute of blood. The inferior lobes were likewise œdematous, and in their posterior more dependent portions, were almost black from the contained blood: but this coloration seemed to depend more on the

character than on the quantity of blood. The posterior surface of each lung, in contact with the parietes of the chest, was deeply furrowed by the impression of the ribs. It may be said of the lungs, therefore, that their prevailing character was œdema; and that, although there was an unequal distribution of blood in them, there was nothing which could be truly called sanguineous congestion.

The auricles and ventricles of the heart contained a very small quantity of black, thickish, but not coagulated blood. There was no fluid in the pericardium, nor were there any fibrinous clots in the heart.

Abdomen.—Here, as over the chest, there was a considerable layer of subcutaneous fat. On uncovering the viscera, these were observed to be in their natural position. The stomach and intestines were moderately distended with air, but entirely destitute of solid or fluid contents. A large brown patch was observed on the ascending colon just above the cæcum. Some portions were reserved for microscopic observation. The spleen seemed to be quite natural, and certainly was not enlarged or congested. The liver was rather more pallid than is usual; its inferior surface had a tarry look. The gall-bladder had a similar appearance, and contained a moderate quantity of tarry somewhat inspissated bile. The kidneys were anæmic. The bladder was contracted, and contained no urine.

The general deficiency of blood throughout all the organs was striking.

Case III.—Churchill, a labourer, aged about 50, resided in the north-west corner house of Saddler's Buildings, Lower Common. I was summoned at 9 A.M., on the 27th July, a close, sultry morning with an ardent sun, to see this man.

His wife, who came for me, said that he had been poorly for two days with aguish feelings and undue purging; that he had taken some mixture ftom a druggist (prescribed for diarrhœa) which had done him some good, she thought; and that he had gone that morning to try to labour in a neighbouring market garden but was obliged to come home. She described him as cold, rigid, and convulsed, and so ill that she did not expect me to arrive to see him alive. I found him with a blue cadaveric countenance; he was pulseless at the wrists; his heart beat irregularly; and the surface (excepting the chest) was quite cold. He could articulate distinctly, but his voice was weak and his words were slowly uttered. I had him carried from his chair, stiff and doubled up as he was, and laid in bed. From the severity of the cramps it was impossible to get him out of his sitting position; the legs and abdominal muscles were rigid and occasionally violently affected with spasmodic movements. At the moment of my arrival there was no evacuation going on, but it was stated to me that for an hour previously a fluid resembling dirty water had poured from the bowels. He had likewise had vomiting of a similar fluid. The patient seemed moribund. I had with me pills of camphor and Cayenne pepper, but his efforts at swallowing were not successful, though they were determined and intelligent. A little time was lost in getting the camphor-chloroform solution, which was administered in large doses every ten minutes; but before he began to take this medicine, hot bags of salt were placed around him and a large sinapism was applied to the spine. In the course of an hour and a half, during which this treatment was unremittingly continued under my personal superintendence, the pulse became apparent at the wrists and the body became warmer. The

cramps likewise abated and the blueness of the skin diminished. I then left him in charge of Dr. Henry who continued the treatment with some modifications. At 2 o'clock, I found him going on favourably, and at 4 P.M., in my presence, he swallowed a cup of cold beef-tea. At 7 o'clock, he was very hot, and complained of acute pains in his limbs and of headache. He seemed drowsy, which was not surprising, as he must have taken, within twelve hours, more than a scruple of camphor. All medicine was now suspended. The warmth was ordered to be kept up and the friction continued at intervals. If thirsty, he was to have draughts of water acidulated with sulphuric acid, and some cold beef-tea at specified periods.

I did not see him for eleven hours. He had passed the night uncomfortably, but there had been no return of the coldness, collapse, or purging. No one could have supposed that he was the same man, so entirely had his features changed for the better. There was a great moisture on the skin, and the kidneys, which had on the previous day secreted no urine at all, were now rather active. He complained of an uneasy and distended condition of the bowels, for which I prescribed a full dose of castor oil with some laudanum and carminatives. Towards evening he had a stool without much feculent odour, and about an hour afterwards he had simultaneously slight rigors and a serous discharge from the bowels. He then had a draught containing camphor, chloroform, and creasote.

Next morning the report was favourable; and he was certainly better. I then prescribed, to be taken three times daily, disulphate of quinine with sulphuric acid, each dose containing four grains of the disulphate, and fifteen drops of the acid. This treatment was continued for two days.

After that time he was able to walk out. He continued to take the medicine for several days.

CASE IV.—Mrs. C., wife of the preceding, had a severe attack of serous purging, with subsequent coldness of the surface, on the 28th of July. I saw her two hours after the first liquid stool. She never had another serous evacuation from the time she took the first dose of a mixture of creasote and mucilage. Each dose contained three drops of creasote; and she took three doses in as many hours. Next morning she was very weak, and the tongue was furred. She took a dose of calomel and rhubarb, and for several days afterwards—though apparently perfectly recovered except as regarded her strength—she took citrate of iron and quinine.

CASE V.—Loveday, a labourer. The symptoms and the treatment were very similar to those of Mrs. C. For sixteen hours he passed no urine. I mention the case because it also occurred on the Lower Common, and in a house close to that occupied by Churchill and his wife, and on the same day in which Mrs. C. was seized.

At the same time I was attending upon the Lower Common (together with the above cases) four cases of diarrhœa in one family, two cases of severe neuralgia, and a case of fever (Thornton) of the remittent type, but so obscurely marked as perhaps to bring it under the designation of continued fever. There was no purging or collapse in these cases. An infant in an adjoining house was also at the same time under my care with the usual symptoms of infantile remittent fever. Other cases of disease were under treatment in this locality by other medical men at the same

time. Some weeks afterwards, however, upon diligent inquiry, I found that there was no sickness. The susceptible population had probably been exhausted by the outbreak, which occurred about the 27th and 28th of July.

CASE VI.—J. R. B. C., my son, aged 13 months, was seized on the morning of the 10th September, 1849, with serous purging. This was restrained by chalk and Dover's powder, but not until extreme exhaustion had occurred. The temperature of the body was maintained by the application of external warmth. A stimulating liniment was rubbed in over the spine, and I administered thirty drops of brandy at very short intervals, according to the demands of the languishing circulation. The pulse and the respirations were very slow, but towards evening they both increased, and the external warmth and the brandy were less called for. About 4 in the morning of the 11th, he became blue and cold, and the inodorous watery fluid poured from his bowels. An enema of acetate of lead was at once administered. Warmth was diligently applied to the surface, and brandy was again freely administered. By these means, complete collapse was probably prevented. He did not, however, rally so well as on the previous day ; and although the body was kept warm by artificial means, the blueness of the skin never disappeared, and the tongue and breath were cold. During this day very small doses of the citrate of iron and quinine were given every hour. He drank several pints of cold beef-tea, to the doses of which brandy was occasionally added. Between 5 and 9 P.M., he had a more life-like appearance, but the tongue, which had hitherto been cold and moist, became hot and dry. He perspired slightly from nine to about five or six in the morning, and altogether

seemed to be better than he had been since the first attack. Suddenly, however, the former symptoms recurred—the blueness, the cold surface, and the serous purging. The quantity evacuated was not nearly so large as on either of the previous attacks, a circumstance perhaps attributable to the acetate of lead enema having been administered without a moment's delay on the first gush from the bowels. He had evidently, however, by this sudden relapse, lost more ground than he had previously gained, and while his mother and I perseveringly continued to keep up the heat of the body, and to administer the citrate of iron and quinine, the brandy, and the beef-tea, we had no hope of life being prolonged many hours. We resolved, however, that if he showed the slightest disposition to rally, we should be ready at once to start with him for Brighton, to give him the chance of benefit from a change to the sea-side air. He hardly improved, but still we determined to go, as by remaining, death seemed inevitable on the next recurrence of the previous symptoms.

He was carefully wrapped up in flannel and wadding. Vessels containing hot water were placed around him. When about to be carried down stairs, a sudden gush from the bowels, and his shrunken death-like aspect, made me hesitate to remove him, merely, as it seemed, that he might die from home. However, the acetate of lead enema was repeated; and brandy was freely given. Though the tongue was cold and the body cramped, he swallowed easily, and I might almost say greedily, whatever was put into his mouth. He decidedly improved in warmth and in appearance as we went along, and when we reached Brighton, there could be no question as to his being better than when we left Putney about three hours previously. There was no

more serous purging. From his leaving Putney, he had brandied beef-tea freely, but no medicine for twenty-four hours. The treatment consisted more in watching than in acting. During the night he became very hot, and continued so during the greater part of the next day. He passed no water from the previous evening till the afternoon of the day following his arrival in Brighton, and how long previously the kidneys had ceased to act, I cannot say. He seemed every hour to improve, and in a week was out of danger, though for more than twelve months afterwards he had a puffy skin and an anæmic aspect. When at Brighton, he continued to take the citrate of iron daily, and had occasionally some doses of hydrargyrum cum cretâ.

In addition to the cases detailed, I had, subsequently to the illness of my child, four cases in Fulham, and nine in Putney, in which there were more or less of the algide stage with cramps as the sequence of serous purging. The treatment adopted in all of them was external warmth, and creasote internally. In some, acetate of lead enemata were used; and the majority had either ammonia, camphor, or brandy, as a stimulant. All had iron and quinine during convalescence. Each successive case tended more or less to convince me of the paramount importance of arresting the serous discharge from the bowels, and of diligently maintaining warmth. I never felt any temptation to use calomel or other medicines empirically. The treatment of cholera may be conducted on as rational principles as the treatment of any other disease.

In one case (Oatts, Gardener's Lane) at the suggestion of Dr. J. Bird, who saw the case with me, quinine was freely given from the first, in consequence of the distinctly marked

ague type being present. I am convinced that the quinine did much good. At the same time, I was attending a gentleman in Wandsworth Lane, who had a regular quotidian ague for several days, the sweating stage being replaced by diarrhœa.[1] At last he became much reduced and had spasms. Upon removal to Wimbledon (a village which is on a higher level than Putney) he got quite well in a week. The severity of the disorder had been previously broken by quinine and arsenic.

IV. PATHOLOGY OF CHOLERA, INCLUDING ITS MORBID ANATOMY.

The history of the Cholera Epidemics of 1832 and 1848-9 indicates a clear course to sanitary reformers, and it also most assuredly holds the torch of truth to the physician, pointing out to him the true pathology of cholera, and by the light of that pathology guiding him to the principles on which he is to apply the abundance and the variety of his therapeutic resources.

The first subject which suggests itself for investigation is the relation which cholera bears to other diseases, which, while they require a general epidemic influence to cause them to be severely felt upon a community, likewise need the assistance of endemic or local causes before this result can take place. We have also to consider whether cholera be a new disease?

[1] In October and November, 1853, I saw several cases of this description—one, that of a young lady at East Sheen, under the care of Dr. B. W. Richardson, was very interesting from its severity, and from its cure having been evidently promoted by sulphuric acid and tincture of cinchona.

Marsh miasmata, and the putrid exhalations from decaying animal and vegetable matter, are really the chief causes of intermittent, remittent, and yellow fever; although, most probably, these diseases, or rather, we should say, these modifications of the same disease, may, in their more intense forms, and under certain peculiar circumstances, be communicated by personal contact and thus show themselves beyond the territorial range of the miasmata. They do not each, however, originate in distinct specific poisons; nor do they originate in morbid animal poisons, like scarlatina and typhus—diseases which are, in the strictest sense of the term, contagious. The true state of the case seems to be this, namely, that miasmatic fevers cannot be propagated to any extent where there are no miasmata prevailing, but that a partial eruption of cases may occur depending on contagion. The effect produced by a change of wind points out strikingly how fevers are rapidly carried from one place to another. Dr. Dundas, quoting Lancisi, informs us that thirty people being out boating on the Tiber, the wind suddenly veered round to the south, the consequence of which was that twenty-nine out of the thirty were seized with fever. The miasmatic diseases already named, however, while they essentially differ from typhus and scarlatina, do not differ pathologically from each other, the apparent distinctions between their phenomena depending upon accidental causes, such as climate, temperature, and what, for want of any other term, we must, with Sydenham, call the epidemic constitution of the atmosphere.

A very cursory glance at the statistics of malarious fevers in the West Indies will convince any one how much the type of the fever is influenced by the condition of the atmosphere, especially as regards temperature, winds, and elec-

tricity. A hurricane has been known to convert the most malignant type of yellow fever into a manageable intermittent. This fact is of itself sufficient to establish the pathological identity of intermittents and remittents, which have been so often described as essentially differing from each other.

The previous sanitary condition of individuals is also a remarkable element in determining the type and gravity of the fever. The degree of exposure to the miasmata and the sudden or gradual nature of that exposure are circumstances which give a character to groups of cases. Persons going from a healthy district to one where ague is prevailing as an epidemic, are generally seized, not with the *intermittent*, which is affecting the natives and long residents, but with *remittent* fever; *i. e.*, with the same disease in a more aggravated form. When a yellow fever epidemic breaks out, the acclimated and non-acclimated, regarded as two classes, are attacked with diseases of very different degrees of malignity, and in both the periodicity of the fever is strikingly modified. For example, it often happens that, when the acclimated are attacked with a common intermittent fever, the non-acclimated are swept away by a more pernicious form of the disease, as by remittent fever, or by that more intense form called yellow fever. Europeans, on their arrival in the West Indies, are very commonly seized with bilious remittent or yellow fever, which, from this circumstance, are in their cases properly called "seasoning fevers," or the fevers of new-comers; and, indeed, they may be truly called the fevers of new-comers, for new-comers are seized by them even when there is no prevailing epidemic. Here we have an illustration of endemic causes being sufficient to originate, in one class of individuals, a

certain definite train of morbid phenomena, which require, in another class of persons, the operation of epidemic as well as of endemic causes. The pestilential miasmata are therefore, we must suppose, floating constantly in the atmosphere of these places or in the water used by the inhabitants, but not in sufficient abundance, concentration, or virulence, to affect those who have become habituated to their influence, though these agents are abundantly potent to give rise to fever in persons suddenly, or for the first time, exposed to them.

It does not seem necessary to prove that cholera is a malarious disease. True though it be that the pestilence has travelled to our shores from the far East, and that we must therefore recognise, as essential to its propagation, a specific poison or a specific constitution of the atmosphere; yet it is equally true that it has only been able to do its deadly work on a large scale on the banks of rivers, or amid the inhabitants of districts which are ill drained, or the air and water of which have been notoriously contaminated by open privies, cesspools, or other putrescent nuisances of a similar character.[1] In a word, the recent vital statistics of the Registrar-General unequivocally corroborate what Macculloch averred in 1828, from the comparison of various data, that cholera is a disorder which is either produced by malaria,[2] or which requires the assistance of malaria for its extensive propagation.

The apparent exceptions to the malarious character of

---

[1] That the contagious character of cholera is proved by the disease having always proceeded with the tide of commerce from east to west I believe: but it is a question too intricate for discussion in this place.

[2] Macculloch (John, M.D.):—On Remittent and Intermittent Diseases. London: 1828.

cholera are not stronger than those which have been brought forward to disprove the malarious origin of ague. For example, in the Alentejo, a province of Portugal, south of the Tagus, 500 feet above the level of the sea, and entirely devoid of marshes, intermittent fever is endemic, and hardly any one escapes. The whole country is covered with Gum Cistus in rank vegetation; and the surface abounds in rocky debris wonderfully retentive of moisture. These circumstances abundantly explain the prevalence of miasmatic fevers. With regard to these diseases, it must also be remembered that they may be desseminated to a small extent by personal communication, and still more by corrupt water, as is abundantly proved by facts such as those which Dr. Snow has collected. Dr. Snow believes that water is often the medium by which the specific poison of cholera is disseminated by being swallowed. His facts seem to justify this conclusion. Cold east winds, and exposure to damp night air, as Dr. Dundas [1] correctly argues, produce agues without the assistance of any specific malarious "poison." But that and other facts of kindred character do not militate against Dr. Snow's views.

It has been the ignorant or interested boast of the bone-crushers of Lambeth, that the emanations from their stores of putridity are harmless, because persons living on the premises have been more exempt from the epidemic than others at a little distance. If this be a fact, it is one which admits of a ready explanation. Those resident on the premises are acclimated, whereas those living at some distance have the seeds of pestilence sent to them only fitfully, according as the wind may blow. There can be little doubt

[1] DUNDAS (Robert):—Sketches of Brazil; including New Views on Tropical and European Fever. London: 1852.

that the ravages which cholera has made in Millbank Prison are mainly dependent upon the putrid bone-yards on the opposite side of the river. The prisoners are probably, in the majority of cases, feeble, dissipated characters; and they are also suddenly brought into the malarious atmosphere; and these two circumstances, when taken in connexion with the mental depression which we must suppose to exist more or less in every prisoner, point out how it is that such persons may suffer from the pestilential emanations referred to, while those residing in the midst of them are less frequently and less severely affected. The same remarks will hold good with reference to the horrible graveyards of the metropolis which have been recently shut up, and to the filthy bilge-water in the holds of vessels which accounts for the outbreak of cholera in ships at sea. In the autumn of 1843, the modification effected by previous residence upon the Relapsing Fever then prevailing in Edinburgh, was well seen. Tramps, vagrants, and Irish reapers, upon arriving in Edinburgh, were in general seized with the disease in a much more virulent form than persons of the same class, of precisely the same habits, and inhabiting the same localities who had been there resident for some time before seizure.

Duflot states, in his work on Yellow Fever, that persons habitually exposed to putrid emanations, as tanners, tallow-chandlers, and soap-boilers, are less liable to that disease than agricultural labourers who work under an ardent sun, or smiths, bakers and others who are subjected to great heat within doors.[1] There would, therefore, seem to be something preservative in being habituated to the operation of morbid poisons which dangerously or fatally affect persons

[1] DUFLOT:—Etudes sur la Fièvre Jaune. *Thèse.* Paris.

suddenly brought into contact with them. Every one can, within his own experience, recal cases in which malignant fevers have suddenly broken out in houses where the sewerage or cesspools have been allowed suddenly to contaminate the water-cisterns or the air of the apartments.

Illustrations might be indefinitely multiplied to show how much accidental circumstances may modify the type of disease ; and, having premised thus much, we become better prepared to appreciate the doctrine of Dr. Billing, Dr. James Bird, Dr. Charles Bell, and others, that cholera is pathologically of the same family as intermittent fever—that it is, in fact, a pernicious ague, as was long ago believed by Alibert, Comparetti, Sydenham, and Morton.

The doctrine which is most in consonance with my reading and observation is very concisely stated by Dr. Billing in the following sentences. "Under the denomination of ague, I include remittent as well as what are called intermittent fevers. Ague is essentially fever : it forms, however, a connecting link between fevers and neuroses, as a considerable degree of nervous sensibility exists in it. Ague is, besides, closely allied to Asiatic cholera and influenza, which are also essentially febrile diseases, as I demonstrated in 1832, when we had daily opportunities of seeing the epidemic." (Billing's *First Principles of Med.*, p. 236.) Of the intimate relationship which exists between fevers (including cholera) and neuralgia, as stated by Dr. Billing, I am thoroughly satisfied by a review of all my experience of these affections.

Various methods may be suggested, by which each person may examine for himself the question as to the resemblance between, or rather identity of, cholera and ague. For example, we may examine the records of various epidemics

of intermittent and remittent fever, and we shall there find abundance of cases which might truly be designated cholera. I have now before me the work of Alibert entitled *Traité des Fièvres Pernicieuses Intermittentes*, originally published fifty years ago. This author hesitates as to whether *cholera-morbus* ought to be considered as a distinct disease, or as a variety of pernicious intermittent fever.[1] He quotes the following illustrative case from Torti :

" A man, aged 64 years, was attacked by simple tertian fever, accompanied by bilious vomiting, and dejections of the same character. These symptoms had, on several previous occasions, complicated diseases by which the patient had been affected, which circumstance induced Torti to administer remedies reported to have been beneficial in similar circumstances. But after the fourth or fifth paroxysm, the phenomena indicated a frightful intensity in the disease ; the vomiting was violent and copious, and the stools followed each other almost without an interval ; and each time the patient vomited or purged, there was extreme anxiety. The symptoms which succeeded were—a general coldness, a feeble pulse, sighing respiration, hiccup, sunken eyes, lying in the supine position, and an almost total inability to perform any muscular movement. In this alarming state of matters, it was probable that deglutition would be very difficult, or that if the patient did swallow anything, it would be immediately rejected. The danger was imminent ; the sacrament was administered to the patient ; when, although everything

---

1 " Si l'on a égard au choléra-morbus, considéré comme indépendant de la fièvre pernicieuse intermittente, aucune affection peut-être n'a été décrite avec des couleurs plus vraies, plus énergiques, dans les épidémies d'Hippocrate."—*Alibert*, 4ème édition. Paris, 1809, p. 14.

seemed to announce speedy death, Torti resolved to give cinchona in large and often repeated doses. The symptoms did not diminish; and, although there were no fresh paroxysms, the condition of the patient remained very critical. The pulse gradually became restored; but the heat was with extreme difficulty re-established. The cinchona was continued for several days in large doses; by the use of wine, which the patient could hardly retain during the first few days, his almost extinguished life was supported. In a few days, he was convalescent, having been (so to speak) recalled from death to life."

Alibert says that the predominating symptom which constitutes the disease (fièvre pernicieuse intermittente hépatique ou atrabilieuse) is a copious and frequent flux from the bowels, resembling the washings of raw meat (semblance à la lavure de chair) and which was described by the ancients under the name of hepatic flux. "It first shows itself," says he, "without any symptoms of apparent danger; but it speedily induces extreme prostration of the vital forces. The pulse becomes small and feeble; the voice is sharp, and sometimes aphonia comes on. There is a remarkable chilling of the body and of the extremities. The patient has such a tendency to fainting, that it occurs whenever he attempts to get out of bed. The intellectual functions are, nevertheless, unchanged." (p. 15.)

Comparetti, in his work entitled *Risconti Medici delle Febbri Larvate Periodice Perniciose*, published at Padua in 1795, speaks of a species of double tertian fever, which he designates *collerica sincopale*, and describes in such a way as to show very clearly the correctness of the views which it is at present attempted to illustrate. The diminution of animal heat, and the weakness of the pulse, characterise the cold

stage of the fever, rendering it truly a stage of collapse.[1] The remedies which he recommends are laudanum and cinchona. He refers to three cases of intermittent fever described by Morton, which had the mask of cholera, and which had alarming symptoms of deliquium, violent spasms, and purging. It appears that Raimond-Restaurant treated choleraic intermittent fever by cinchona in 1680. Scanty or suppressed urine forms a leading symptom in the histories of cases of choleraic intermittent fever, described by the authors whose names have been already mentioned.

Dr. John Webster, in 1832, satisfactorily showed that cholera with a well-marked intermittent type was, in the time of Sydenham and of Morton [1669-1693], a great scourge of London. It was called cholera morbus by these physicians; and, in the Bills of Mortality, "gripings in the guts," and "plague in the guts." In 1669, when the population of London was only 600,000, the deaths from this disease were 4,385.

The subjoined extract from an old work by Bontius, a Dutch physician, who practised in the East upwards of two centuries ago, is an excellent description of cholera. He says:—"Besides the looseness of the bowels, of which I have already spoken, cholera commonly troubles the sick in this country. The causes, symptoms, and treatment of this disease I intend to describe in this chapter. Cholera is characterised by the almost constant and abundant ejection by the mouth and bowels of a bilious and

[1] "La febbre per l' ordine degli accessi, per la qualità, e relazione di alcuni sintomi, per la remissione de' più gravi in certe ore, per la qualità dell' orina, pel difetto del calore, per la debolezza del polso, e pel cambiamento di tali caratteri nell' uso del febbrifugo dichiarassi periodica del genere delle doppie terzane, e della spezie perniciosa collerica-sincopale."—*Comparetti*, part ii, p. 414.

highly irritating material, which disturbs the stomach and intestines. It is a very acute disease, and therefore demands prompt treatment. The principal cause of this disease, besides the hot and moist air, is the excessive indulgence in fruits.[1].....This excretion would, not without reason, appear to some to be beneficial, by removing material which ought to be excreted ; but since, with the great excess, the vital and natural powers are at the same time poured out, while the heart, the seat of heat and life, is debilitated by the foul exhalations, very many patients die ; and they die very quickly, sometimes within twenty-four hours or sooner. This happened to Cornelius van Royen, steward of the hospital, who, being in health, was suddenly seized with cholera, and died miserably before 12 o'clock, having suffered from vomiting and purging, with tortures and cramps : the violence and rapidity of the disease here overcame every kind of medicine. If, however, the disease is protracted beyond the above-mentioned time, there is great hope of recovery. The pulse is in this disease very weak ; the breathing is impeded ; the limbs are cold externally ; a sensation of violent heat and thirst torment the patient internally ; there is constant want of sleep ; and constant most restless tossing of the body ; and if a cold and fœtid sweat accompany this symptom, death is certainly near at hand. In this disease we must first endeavour to mitigate the virulence of the humour which is operating with such violence. This will

[1] This is, I doubt not, a mistake. Ripe fruits are particularly salubrious in autumn, and can be largely partaken of every day by most persons, not only with impunity but with advantage. They are unduly abstained from in the present day, from the prejudice against them entertained by the physicians of past times having become popularised and traditional.

be best done by astringents, and medicines which give tone to the stomach and intestines, and at the same time restrain the violent action of the morbific material, by moderate cold." (He recommends fresh lemon-juice among other remedies.) "Cholera patients almost always die with cramps." [1]

[1] "Præter jam dicta alvi profluvia, etiam Cholera hic familiariter ægros infestat; cujus causam, signa ac symptomata, curam denique hoc capite absolvere est animus. Fit itaque cholera cùm materia biliosa, ac prætorrida ventriculum ac intestina infestans per gulam simul, ac per anum continuò fermè, ac cum magnâ copiâ rejicitur. Morbus est acutissimus, ideoque præsenti eget remedio. Causa præcipua hujus mali, præter aëris calidam ac humidam temperaturam, est nimia fructûs hic edendi licentia. . . . . Hæc excretio, et non sine causâ, alicui videretur salubris, qùod talia purgentur qualia oportet; tamen quia cum tantâ quantitate simul effunduntur spiritus vitales ac naturales, debilitato quoque per fædos halitus corde, caloris omnis ac vitæ fonte, utplurimum commoriuntur ægri, idque cellerrimè, utpote qui intra viginti quatuor horas vel etiam pauciores expirent; ut accidit inter plurimos Cornelio van Royen, ægrorum in Nosocomio Œconomo, qui, horâ 6ta vespertinâ, adhuc valens, subito Cholerâ corripitur, et ante duodecimam noctis horam vomendo simul, ac per alvum dejiciendo, cum diris cruciatibus ac convulsionibus miserrimè expiravit; vincente morbi violentiâ et celeritate omne remediorum genus. Si tamen ultra prædictum spatium pernicies ista protrahatur, magna curæ spes est. Pulsus hìc admodum debilis est, respiratio molesta, membra externè frigent. Calor vehemens ac sitis internè urgent, vigiliæ adsunt perpetuæ. Jactatio corporis inquietissima, quæ si comitetur frigidus ac fœtidus sudor, mortem in propinquo esse certissimum est. Danda in hoc affectu primum opera ut acerrimus iste humor, qui tanto furore ac organo fertur, mitigetur. Quod fieri poterit maximè per astringentia medicamenta, ac ventriculum et intestina corroborantia, et simul modico frigore furorem materiæ morbificæ refrenantia." . . (Uses among other remedies "syrupus è succo limonum recentium.") . . . "Cholerici (ut fere semper) convulsi moriuntur."—Jacobi Bontii Medici Methodus Medendi quâ in Indiis Orientalibus oportet uti, in curâ morborum illic vulgarium ac populariter grassantium. Cap. vi, De Cholera.

The work of Bontius is thus dedicated—"Amplissimis, magnificis, ac

Enough has now been said to show that cholera is not a new disease; that periodicity has been long ago recognised as one of its essential characters; and likewise that its treatment by antiperiodic remedies is of equal antiquity.

It may, however, be interesting, as corroborating the doctrine that cholera is a form of intermittent fever, to refer to the following extract from the New Statistical Account of Scotland, regarding the medical statistics of Kelso, a town in the county of Roxburgh, during the cholera epidemic of 1832. It is well known that an improved agriculture has extirpated ague from many districts where it used at one time to prevail. Its total disappearance from the county of Haddington, where it was formerly endemic, must be ascribed to an amelioration of the atmosphere, the result ef the drainage of the land, which has there been carried out on a scale of great extent and magnificence. The same cause has produced a similar effect in Kelso and many other places. The following table is compiled from the records of the Kelso Dispensary.

In 1832, it is said that the increase in the number of agues was apparently occasioned by the opening of some drains in a piece of marshy ground. It was in this year that cholera visited Kelso with great fatality, and for two months the dispensary was used as a cholera hospital, during which time no records of the other cases were kept, so that the cases of intermittent fever for that year must have been more numerous than they appear in the books. [1]

---

prudentissimis viris, negotiorum in Indiis Orientalibus præfectis Majoribus." It is dated "Coloniæ Bataviæ Novæ in regno Jacatiensi, anno 1629, Novembris 19."

[1] The table quoted in the text possesses considerable interest in several points of view. It appears that the years 1780, 1781, and 1782, were

DISEASES.—FIRST SERIES.

Years.	No. of patients.	Fever.	Ague.	Asthma.	Rheum.	S. Pox.	Dropsy.
1777–8 ...	302 ...	13 ...	17 ...	10 ...	15 ...	2 ...	10
1778–9 ...	306 ...	26 ...	33 ...	13 ...	16 ...	17 ...	2
1779–80 ...	460 ...	109 ...	71 ...	17 ...	22 ...	37 ...	2
1780–1 ...	675 ...	147 ...	159 ...	19 ...	32 ...	4 ...	5
1781–2 ...	510 ...	65 ...	103 ...	24 ...	21 ...	4 ...	11
SECOND SERIES.							
1831–2 ...	772 ...	66 ...	0 ...	4 ...	40 ...	0 ...	9
1832–3 ...	561 ...	26 ...	6 ...	1 ...	18 ...	1 ...	7
1833–4 ...	729 ...	39 ...	1 ...	3 ...	42 ...	2 ...	8
1834–5 ...	678 ...	65 ...	0 ...	3 ...	30 ...	51 ...	5
1835–6 ...	593 ...	63 ...	1 ...	2 ...	38 ...	0 ...	6

The effect of malaria is to render the blood dark coloured, and to cause a breaking up of its globules, and hence results the imperfect elimination or complete suppression of the normal secretions. Majendie has produced these effects artificially in dogs by injecting a small quantity of putrid water into a vein. In reference to the appearances found on dissection, he says :—" Among the pathological phenomena presented by animals into whose veins putrid water has been injected, we have principally remarked among the

---

very severe for the lower orders, in consequence of the inclemency of the weather and the scarcity of food. In addition to the heavy list of fever and ague cases, there occurred, during that period, twenty-one of scurvy. In 1781-82, there was an unusual number of cases of dropsy, depending, there can be little doubt, upon the great prevalence of intermittent fever during the preceding years. Asthma is often a sequel of intermittent fever; and by reference to the table we see this fact well illustrated. Probably the asthma which follows intermittent and remittent fevers and likewise cholera, is the result of the peripheral portions of the lungs never recovering from the capillary congestion characteristic of the primary diseases.

intestines that which is commonly called acute inflammation, or in other words, an exhalation of a matter of the colour of the water in which meat has been washed, as pathologists have so happily described it. This matter, adherent to the mucous coat of the intestine, and solidified in the form of jelly, is, in reality, a portion of the fibrin of the blood, which has transuded and become coagulated in a peculiar manner in the cavity of the digestive canal. Here is the way in which we prove this position. We have detached and washed with care this intestinal secretion, we have removed the colouring matter from it, and it has precipitated very minute particles of fibrin. I intentionally make use of the word *particle*, for it is in some respects different from a globule, the latter being to a certain extent organised, and affecting a determinate form, and because globules constantly present a great analogy the one to the other, whereas, on the contrary, what I term particles, are merely a heap of extremely delicate parcels differing in form and volume and to which one cannot attach any idea of regular or symmetrical configuration."[1] These masses, since they do not possess the cellular structure of coagulated fibrin, or of accidental tissues, cannot be regarded as the results of inflammation, and it is probable that, were the analogous masses found in the intestines in cholera and yellow fever to be similarly examined, they would present the same physical characters.

The condition of the blood and of the internal organs in persons who have died of cholera has been made the subject of laborious investigation by Garrod, Gairdner, Raikem, Levy, and other pathologists. It is to be regretted, how-

[1] MAJENDIE :—Leçons sur les Phénomènes Physiques de la Vie, tome iv, p. 226. Paris, 1838.

ever, that in many of these observations sufficient attention has not been paid to the stage of the disease in which the patients have died, and especially to the amount of serous draining which has taken place; for it is evident that on this circumstance must in a great measure depend the state in which we shall find the residual blood.

In his valuable paper on the "Blood in Cholera," published in the *London Journal of Medicine* for May 1849, Dr. A. B. Garrod draws the following conclusions from his own investigations, and from those of Drs. O'Shaughnessy, Thomson, and Clanny, and MM. Lecanu, Rose, and Wittstock:—

"1. In cholera, the physical characters of the blood are altered, and its tendency is to become thicker, tar-like, and less coagulable.

"2. The proportion of water is much diminished.

"3. The specific gravity of the serum is very high, which is due to the increase of the solid portion of the serum, and especially of the albumen; and the fluid also tends to become less alkaline in its reaction.

"4. The saline constituents of the blood are not only not decreased in amount, but sometimes exist even in increased proportion; and the diminution of its alkaline reaction is not due to the loss of salts, but to the impeded excretion of organic acids which are constantly being formed in the system.

"5. Urea usually exists in increased quantities in cholera blood, but the amount differs considerably in the different stages of the disease, being but small in quantity in the intense stage of collapse, increasing during reaction, and in excess when consecutive febrile symptoms occur."

Dr. W. T. Gairdner, in his "Memoir on the Pathological

Anatomy of Cholera," in the *Edinburgh Monthly Journal* in 1849, says: — "The remarkable viscidity so often noticed was chiefly observed in cases fatal during the collapse or early reaction; and was certainly owing to the removal of the fluid matter by the intestines." These remarks of Dr. Gairdner I believe to be very correct. It is to the excessive evacuation of the fluid part of the blood that we must refer the spissitude of that portion which remains in the vessels; and it is from the examination of patients dying in the stage of collapse, or of early or feeble reaction, that the description of the blood in cholera has mainly been taken. Of the blood in the earlier stages, less is known; but Dr. James Bird, after stating that he was rarely able to obtain blood from the veins of patients in the collapse, says that, "in the earlier periods, the blood flowed more freely from the veins of the arm, though it trickled down in a small feeble stream"—evidently showing that, although alteration had commenced, it had not become so far inspissated as is commonly described.

Dr. Zarlengo of Naples, says that cholera is a disease in which the blood is unfit to support life. He remarks— "Hâc crasi corruptâ fit ut sanguinis serosa pars e cruore disjungatur ac ad tubum gastricum congregetur; ex quo evenit, ut materia serosa continuo vomatur aut per alvum ejiciatur, dummodo membranæ serosæ atque vesica urinaria liquore omnino carens, exarescit." (Quoted by Knox, *op. cit.* p. 50.)

The remarks which I have made with regard to the importance of noting the stage of the disease apply with great force to the pathological conditions of the internal organs. Let me take an example from among other diseases. A patient may die in the early stage of scarlatina and may

have had anasarca and albuminuria, but we may find the kidneys only congested; whereas, if we examine these organs in one who has died after suffering from dropsy and albuminuria for weeks or months, we shall probably find degeneration. The observations of Drs. Gairdner and Raikem were made on patients who had died in the stage of collapse, and they, as well as those of MM. Levy and Tholozan and others, point to a general deficiency of blood in the system, many organs presenting the appearance of bloodlessness in a marked degree. It is true, that "congestion" and "sanguineous infiltration" have been mentioned by MM. Levy and Tholozan, as being found in the algide stage, but these phenomena are by no means to be confounded with the congestion or subacute inflammation arising during reaction. They are, I think, chiefly mechanical effects of the thickening of the blood, and in this way also are to be explained the "subpleural ecchymoses," "hyperæmiated vascular ramifications in the gall-bladder," "hyperæmiated villosities" in the stomach (Raikem), and the ecchymoses, arborisations, etc., described by Levy and Tholozan as present in the intestinal canal. These observers mention the congestion of the kidneys and effusions in the lungs, but they also describe the blood procured from these "congested" organs, by section and pressure, as being *thick*.

I have not considered it necessary to enter minutely into the appearances presented by the various organs in cases of death from cholera, believing that more information is to be gained from a careful consideration of the alterations produced in the blood. It is simply absurd to fix on any part, and to say that, because we there find "congestion" or "inflammation," cholera has its seat there. If indeed any

of the appearances of hyperæmia found in cholera patients are referable to the same causes as the eruptions of measles or scarlatina, or to the bronchial or renal congestions in these diseases, they are not, in the present state of our knowledge, to be distinguished from those—probably the most numerous class—which obviously arise from the cause to which I have already so often referred—the inspissation of the blood, and the consequent impediment to its passage through the capillaries.

The adoption of the following conclusions seems to be justified by the facts and analogies now brought under review :

1. Cholera is a fever, intimately related to those fevers which depend on malaria.
2. The intermittent or remittent type can be generally recognised in the milder, and also not unfrequently (though less distinctly) in the severer cases.
3. The stage of collapse ought to be considered as an aggravated cold stage of the paroxysm of a pernicious fever, which may spontaneously terminate in death or reaction.
4. The least dense portion of the blood has an excessive tendency to exude through the capillaries of the stomach and bowels, and pass from the body by vomit and stool.
5. The inspissated residual blood being unable to pass through the small pulmonary vessels, causes congestion of the lungs, and, as speedy consequences of this condition, paralysis of the right side of the heart from over-distension, asphyxia, and other subordinate derangements of the vital actions.
6. Death may take place from :—

a. Asphyxia.

b. Necræmia, *with* loss of the least dense portion of the blood by stool and vomit.

c. Necræmia *without* such loss of the least dense portion of blood as can be discovered during life—the exudation remaining within the stomach and intestines.

d. Toxæmia from absence or deficiency of sanguineous depuration.

e. Inflammation of lungs or other organs supervening in convalescence.

f. Debility.

g. Gastro-enteritis.

h. Two or more of the above causes combined.

7. The anatomical lesions found on dissection vary with the duration of the illness, the causes of death and the circumstances which attend it.

V. TREATMENT OF CHOLERA.

The advocacy, by many, of a uniform and empirical system of treatment of cholera, has greatly tended to obstruct the progress of rational inquiry. Several plans, and particular remedies have been found useful; and practitioners, impressed by the published account of successful cases, have too often contented themselves with empirically repeating the instructions of others, without carefully analysing the facts and seeking for a rational explanation of the *modus operandi* of the therapeutical agents which they employ. The stage of the disease has not been sufficiently noted in relation to the therapeutic means adopted, and recoveries have been too largely designated cures. With one, capsi-

cum has been the specific; with another, camphor; with another, sulphuric acid; with another, acetate of lead; with another, quinine; and so on might the list be indefinitely extended. That all these and other medicines are *par excellence* cholera remedies, I perfectly believe; and it seems to me that a more rational and more successful treatment is to be obtained by a judicious application of the means which we possess, rather than by searching for a specific.

It is certainly of primary importance to bear in mind that we have a poison-disease to deal with, resembling, if not indeed identical with, a pernicious ague—a disease which has a course to run, which may be modified and curtailed, but which, even when let alone, shows a disposition to terminate in recovery. Our duty, therefore, in the first stage —when chills and other premonitory symptoms of discomfort may be present—is to adopt measures which may be regarded as prophylactic rather than curative. It is in this stage that the pernitrate, or some other preparation of iron, and the sulphate of quinine, are of signal benefit. Here however we must not follow a blind empiricism. We must, if the digestive system be at fault, combine with the use of these special medicines a judicious alterative system; and, should there be any tendency to copious watery evacuations—to loss of the serum of the blood—we must promptly administer those remedies which are generally termed hæmostatics, among which may be particularly mentioned quinine, sulphuric acid, nitric acid, acetate of lead, creasote, and nitrate of silver. If the case should proceed a little further in spite of our endeavours to arrest its progress, or should the case, from its inherent intensity, or from neglect, not present itself for medical

treatment till the secondary effects of the loss of serum have become apparent, we may probably find it useless to resort to the quinine, and may be obliged to treat the cramps and collapse which threaten speedy dissolution. The necessity for diffusible stimulants is now apparent, and of them all, as a general rule, camphor will be found the most useful. It may be conveniently administered in large doses by dissolving it in chloroform, and the solution combines so well with creasote, that it will often be found prudent to confine our administration of medicine to frequent doses of a mixture of camphor, chloroform, and creasote. The chloroform, besides acting as an adjuvant medicinally, is useful as affording facilities in dispensing. The camphor acts quickly as a diffusible stimulant, and the creasote has a powerful effect in restraining the serous discharge. Indeed, I am inclined to think that its beneficial effects are not much, if at all inferior in this respect to those of sulphuric and nitric acids. External warmth and the use of stimulating embrocations are very beneficial in conjunction with the internal use of camphor. The suppression of urine is not a symptom which is to be relieved or removed by the administration of diuretics: it is a necessary consequence of the congestive paroxysm of the disease, and its cessation is likely to follow the cessation of that paroxysm.

Enormous doses of opium, calomel, and other powerful drugs have been given to cholera patients; and there can be no doubt that such substances, when introduced into the system when in a state of collapse, are not likely to produce any very suddenly appalling effects. Indeed, in a vast number of cases they seem to lie as quietly in the stomach of the cold cholera patient, and to produce as little effect

there, as if they were deposited in a glass bottle. Should the patient, however, emerge from the state of collapse, he runs almost as great a risk from the poisonous doses of these drugs which have been placed in his interior, as he has just escaped by recovery from the pestilence. Large quantities of these deleterious agents may pass off unchanged by the bowels; but it cannot be questioned that in a very great number of cases treated in the way mentioned, patients have had their convalescence abruptly arrested by fatal narcotism or exhausting salivation. The use of opium and calomel in ordinary doses is often necessary; but the inordinate quantities of these medicines formerly, and perhaps still, employed by some practitioners cannot be too much condemned.

The importance of arresting the serous discharge and of maintaining the warmth of the body by the application of heat externally cannot be over-estimated. In fact, the judicious carrying out of these intentions constitutes the essence of the treatment of every case of cholera. Other therapeutic measures may be regarded as liable to considerable variety according to circumstances, and as being valuable and auxiliary rather than always indispensable. The prompt arrest of the serous discharge by creasote, sulphuric acid, nitrate of silver, or some other remedy, has undoubtedly saved innumerable lives; and from amid the chaos of contradiction, depreciation, and laudation, in which the merits of special modes of treating cholera are involved, the diligent application of warmth to the surface may be extricated as the measure of universally admitted value.

Mr. Barwell, in a little work just published, says: "It is a grand essential to keep up the temperature of the patient, since the tendency to become cold is certainly a

great characteristic of this disease. Hot bottles should be placed to the feet and inside of the thighs; and india-rubber bags filled with hot water to the loins and abdomen. The bed-clothes must be ample, and should be so arranged, by means of an extra blanket wrapped round the shoulders, or passed round the chest and under the arms, that the patient does not bare that part to the cold in his restless jactitations, nor in rising on the elbow to vomit, as he may perhaps frequently be obliged to do." These recommendations of Mr. Barwell are sound and practical. They are, moreover, firmly based upon facts which came under his observation in St. Thomas's Hospital. In the following passage, he states very clearly, and, I think, very correctly, the relative value of internal stimulants and external warmth in cholera; and he also refers to the hospital experience already referred to, upon which his opinions are founded.

"Stimulants," continues Mr. Barwell, "such as brandy, ammonia, or wine, though decidedly useful in their place, have not such effect in restoring circulation and exciting the system to greater action, as in collapse from other disease; indeed, considering the difference of its cause in this and in other maladies, it is not to be expected that they would be as beneficial; for prostration usually occurs in consequence of nervous shock, and consequent loss of nervous power; therefore stimuli which act upon that system are naturally, in those cases, such as would benefit. But in this disease there is comparatively little loss of nervous power; in fact, with so great disturbance of the circulation, the retention of nervous power is marvellous. Our remedies ought not, therefore, to be directed through that system, but we should, if possible, find some means of acting on and recalling the circulation without exciting the nervous centres; and the

best mode of doing this is by external heat. This principle of combating the deadly cold collapse was not found or recognised at St. Thomas's until after several cases had been treated at the hospital, and the general inefficacy of medicine or of stimulants proved. Though a certain number under the treatment then adopted recovered, still the whole result was unsatisfactory: thus, of twenty-eight cases of perfect collapse, before external heat was used, seven only recovered —a very small proportion; but, after external heat was employed, sixty-one patients were treated by some mode in which this formed an essential part; and of these, twenty-seven recovered, or not very far from half the whole number." (p. 97.)

Did space permit, I could adduce much evidence of the same description, in addition to what has now been quoted. In fact, I could show that the success which many have ascribed to favourite pharmaceutical nostrums, ought, with much greater probability, if not with absolute certainty, to be ascribed to the external warmth which was employed together with the lauded drugs.

Having now glanced at the general principles upon which medicines ought to be employed in the treatment of cholera, I would remark that I have not enumerated every drug which may be usefully employed, but have selected only those with the operation of which I am personally most familiar. This much, however, may be added, that they are good types of the respective classes of remedies to which they belong.

The formulæ to be adopted must of course be varied in accordance with the circumstances of each case, and it is by a ready power of modifying these formulæ that the skill of the practitioner is displayed. The formulæ cannot be too

simple. No therapeutic advantages flow from a multiplicity of ingredients; and in administering remedies for the purposes of clinical study, as well as of cure, it is obviously necessary not to give more than one medicine, or one class of medicines, at the same time.

The following drugs possess in a high degree the power of arresting the serous diarrhœa which generally precedes collapse by a good many hours—and is the immediate cause of that collapse as well as of the cramps:

1. Creasote;
2. Turpentine;
3. Sulphuric acid;
4. Nitric acid and Nitro-sulphuric acid;
5. Nitrate of silver;
6. Quinine;
7. Gallic acid;
8. Alum; and
9. Acetate of lead.

1. *Creasote.*—Some patients refuse to take creasote, from a dislike to its odour, but if one or two doses of two or three drops can be taken every hour or two hours, in mucilage, I prefer its use to any other means of cure in serous purging. It hardly ever fails.

2. *Turpentine* may be used in place of creasote in doses of ten minims. I have in several cases of diarrhœa found it quite successful.

3. *Sulphuric Acid.*—The use of this acid in diarrhœa is by no means new. The late Dr. Anthony Todd Thomson, in his *Dispensatory* (Edit. 1837, p. 762), wrote as follows: "When combined with mucilages, it has been beneficially given in passive diarrhœa, operating on the relaxed nervous

coat of the intestine as an astringent. The usual dose is from ten to thirty minims, *but this dose may be very often repeated.*" In later years, its use has been revived; and several writers in the various medical periodicals have spoken in high terms of its efficacy. Among these I may mention Mr. W. I. Cox of Kensal Town, who has also employed it in Cholera, (*Lancet*, for August, September, and October 1849, &c.); Mr. W. Griffith of Eaton Square, (*Ibid.*, Oct. 4th, 1851); Dr. G. B. Payne; Dr. Miller of Stoke Newington; Mr. Edgar Sheppard of Enfield (*Provincial Medical and Surgical Journal* for September 15th, 1852, and ASSOCIATION JOURNAL for March 18th, 1853); and several other practitioners. To Mr. W. I. Cox is due, as far as I am aware, the merit of having first employed sulphuric acid in the treatment of *cholera*. A tabular view of the result of treatment of ninety cases, given by him in the *Lancet* for January 26th, 1850, contains a statement that fifty-four cases were treated on Dr. Ayre's system, modified by co-administration of sulphuric acid, of which thirteen died.

Dr. Fuller, of St. George's Hospital, in a paper lately published in the *Medical Times and Gazette*, speaks in high terms of the efficacy of sulphuric acid in arresting diarrhœa. In bilious diarrhœa, and in certain chronic diarrhœas, he says it is of little or no avail, but in epidemic diarrhœa, in "acute autumnal diarrhœa," and in more decided choleraic diarrhœa, he has known no single instance of its failure. He gives it in doses of half a drachm mixed with water every twenty minutes or oftener. The effects produced are described as remarkable: heat returns to the extremities, the nausea and vomiting cease, the purging is stayed, the cramps subside, perspirations generally break out, the tongue becomes moist and slightly coated, the intestinal

evacuations become healthy, and the pulse regains its normal steadiness.

In epidemic cholera, Dr. Fuller has had no experience in the use of this remedy. He would give it in doses of ℥xl or ʒj, five or six times in an hour, simply mixed with water, and he is opposed to the employment at the same time of brandy or any strong flavoured stimulant or carminative. Calomel, if it is thought necessary, may be given at the same time with, or after the acid. Mustard, bran, or other warm poultices or fomentations, may be applied, and they usually afford relief. From the prompt action of sulphuric acid in arresting diarrhœa, Dr. Fuller expresses great hopes as to its superiority in cholera over other medicines which require a longer time for their action.

4. *Nitric Acid and Nitro-Sulphuric Acid.* Mr. W. J. Anderson, in the Association Journal of November 4th, 1853, recommends a combination of nitric acid and sulphuric acid. He says :—"Can a remedy be found which will readily yield up its oxygen, and supply that element to the impure blood; and at the same time, by its astringent properties, tend to check the enormous exudation which takes place from the mucous surface of the intestinal canal? In our present state of knowledge some of the mineral acids appear to be the best adapted to this purpose; and, for certain reasons about to be explained, a combination of nitric with sulphuric acid seems to me to be preferable to any other. The acid should be administered in tolerably full doses, and repeated at intervals varying according to the nature and urgency of the case. For an adult, we may give acidi sulphurici diluti f. ʒij, acidi nitrici diluti f. ʒj in a six ounce mixture, an ounce being the dose for an adult.

Mr. Hope, of Chatham, in the *Edin. Med. and Surg. Journal* of July, 1826, recommended nitrous acid in cholera. He spoke strongly of the efficacy of the following mixture :

℞ Acidi nitrosi, ʒj ;
Misturæ camphoræ, ʒviij.
Misce, et adde Tincturæ opii, ♏ij.

Of this one-fourth is to be taken every three or four hours. Mr. Whiteman, of Putney, informs me that he finds nitric acid so prompt and so satisfactory a remedy in epidemic diarrhœa that he trusts to it in preference to every other medicine. He often combines with it a little laudanum, but in the majority of cases he uses the acid alone. I have not used nitric acid in diarrhœa or cholera, but I have no doubt as to its value in arresting the discharges.[1]

5. *Nitrate of Silver* I have not given in cholera and diarrhœa except in the form of enema. It is valuable in this form. My experience is too limited to enable me to compare the efficiency of enemata of nitrate of silver with those of acetate of lead, and of alum.

Dr. Charles Lever and Dr. Aitken are the principal English writers who advocate the use of nitrate of silver in cholera and diarrhœa. On the continent, the authorities by whom it is recommended are Hirsch, Canstatt, Boudin, Bouchardat, and Trousseau. Dr. Lever, in 1832, extolled the nitrate of silver as a remedy in cholera. In a forlorn case he administered thirty grains dissolved in three ounces of distilled water, which the patient swallowed at once. She

[1] Since the above first appeared, Mr. Whiteman has given an interesting account of experience of nitrous acid in the *Association Journal* for 1853, p. 1063. By nitrous acid, nitric acid is meant.

lay quiet for six minutes when she vomited a small quantity of whitish turbid fluid. She had no return of the vomiting, fell asleep, and recovered.[1] Hirsch prescribed it in the form of mixture, and I am sure that it is a safe medicine in this form, as I have given it internally in other diseases, dissolved in abundance of water. The danger lies in giving the medicine in too concentrated a form. I give ten grains in half a pint of water as an enema.

6. *Quinine.* Of the power of quinine to check epidemic diarrhœa and thus to arrest cholera in what may be regarded as its first stage, I feel well assured from an extensive use of the remedy. It is true that I have generally combined it with sulphuric acid, or with iron, and sometimes with both, so that my facts are not available for the purpose of accurately determining the value of the quinine given alone. Dr. James Bird and others have, however, from ampler data arrived at the same conclusion. Dr. Mandl, in the *Gazette Médicale* of October 29th, p. 682, speaking of the importance of checking the diarrhœa which he has generally found in the initiatory stage of cholera, says, "the most powerful means of arresting epidemic diarrhœa is by administering disulphate of quinine in doses of ten centigrammes" (about two grains) every two hours. He says that he has seen cases of cholerine, in which opium and injections had failed to arrest the discharge from the bowels, cured by quinine in twenty-four hours. Dr. Charles Bell, who has written so ably in favour of the doctrine that cholera is a fever of a remittent or intermittent type, naturally advises quinine. He says :—"If asked what I should do in a case of cholera, I

---

1 LEVER (Charles) :—*Medico-Chirurgical Review* for October, 1834, p. 444.

should answer, that that depended very much on the stage in which I found my patient ; but, in all cases and in all stages, I should certainly give a largely diluted solution of some salts of iron and quinine, with a view to counteract the morbid inactivity of capillary congestion, and repeat it as often as the patient would drink of it, till warmth was restored." The practice is, there can be little doubt, correct ; but it is equally probable that it is a method well calculated to stop the diarrhœa, which Dr. Charles Bell strangely considers salutary. He makes this dangerous announcement :— "Diarrhœa is a natural mode of relief to congestion, and thereby tends to the prolongation of life !" The hæmorrhage from the stomach thrown up as black vomit in yellow fever is nature's mode of relieving congestion, but it is not a salutary hæmorrhage. Within certain limits, a serous or a sero-sanguineous discharge may be harmless, or even useful ; but inasmuch as it is physically impossible for the blood to circulate when deprived of its serum, so is it imperative upon the practitioner to restrain the serous evacuations of cholera. This is unassailable common sense. It is also the teaching of clinical observation.

7 and 8. *Gallic Acid and Alum.* I have often used these remedies in the diarrhœa of phthisis, and occasionally in epidemic cholerine. They are less to be relied on as means for arresting serous diarrhœa than creasote and the mineral acids. They are not superior, and indeed are hardly equal to logwood and catechu, as mere astringents, but I know that some authors regard them as the astringents to be especially used in cholera and serous diarrhœa.

9. *Acetate of Lead* may be used internally, alone or in combination with opium. It is generally a prompt and safe astringent when used in the form of enema.

I have not space to enter upon a consideration of the many reasonable methods of treatment which have recently attracted the attention of the profession and deserve to be spoken of with respect. There is one plan, however, regarding which I desire to say a few words.

The sulphur plan, as advocated by Mr. Grove of Wandsworth, has evidence in its favour, though I do not think that the theoretical ground—the fungus theory of cholera—upon which it is advocated, is tenable. Mr. Grove uses the following formula :—

℞ Sulphuris precipitati, ʒj ;
Sodæ bicarbonatis, ʒj ;
Sp. lavandulæ compositi, ʒvj ;
Aquæ, q. s., ut fiat mistura, ad ℥iij.

A teaspoonful of this mixture has to be taken every half hour or every quarter of an hour.

Mr. Grove informs me that the effect of the medicine is to restore warmth, and promptly to check the serous discharges.

I believe Mr. Blacklock was the first author who recommended sulphur as a remedy for cholera.

In connexion with this subject, I subjoin the following passage from a letter dated September 22nd, 1849, which I received from a non-medical friend residing in Edinburgh :—

"I saw a man to-day from the south muirs, who told me that his wife and he, as well as many of the people of his remote landward parish, had been very unwell ; and, from the symptoms which he mentioned, it was clear that they had suffered from cholera, and had been saved from it. They had no medical man near them, and got no medical

attendance: yet there were no deaths. As soon as they found cramps come over them, they took a teaspoonful of powdered brimstone, or sometimes the flowers of sulphur, mixed with a little whisky, to which was added water if the sick could not otherwise swallow the dose. The man described the cure as certain and very rapid. Try this on the London folks; it may serve the afflicted, and do you much good."

Mitchell says that, "the sulphureous localities of the sickly island of St. Lucia are its only salubrious places. Cities, too, which abound in sulphur products.....enjoy an immunity from ague, for which they are everywhere noted. Immediately around the sulphur works, and factories for making gunpowder and sulphuric acid, the vegetation and the ague disappear together." To this we may add, that in 1849 during the bombardment of Rome, that city suffered much less than usual from malarious fevers—a fact which induced Mr. Walker to recommend cannonading and the discharge of fireworks as measures likely to ward off or prevent the spread of cholera. The rushing of columns of air caused by the production of a vacuum, is, however, the more probable explanation of the benefits (if any) which resulted from the cannonade. Mr. Blacklock (Madras, 1848) says:—"I hope yet to see the day when sulphur, in small quantities, will be regularly issued to every soldier in the field in India—say forty grains per day—while actually marching, and twenty grains per day, during halts, as a sure way of warding off this terrible disease; and I have a firm belief that sulphur, so employed, will be as effectual in banishing cholera from our armies, as lime-juice has been in eradicating scurvy from our fleets."

Mr. Grove quotes the following curious passage from the

London Practice of Physic—a work published in 1692:—"In the year 1670, about the autumnal equinox, a world of people here were seized with a most dangerous flux (though without blood), and joined with a cruel vomiting, which presently caused great fainting and a total decay of strength. For the cure of this disease, no evacuation did good; nay, bleeding, vomiting, and purging did hurt: only cordials, and those of the hottest nature, to wit, such as abounded with *spirit and sulphur*, did good." (p. 22.) From this, it would appear that the whisky and sulphur treatment of the south muirs of Scotland is an old medical tradition.

Manec administered sulphur in all possible forms, in his treatment of cholera in the Salpêtrière in 1849.

Sulphur is a stimulant of the capillary circulation, and so is camphor—one of our best remedies against collapse. Perhaps the combination of the sulphur with hydrogen is the cause of the augmented heat in the surface of those who take the former in repeated doses. The characteristically offensive smell of sulphuretted hydrogen gas is sufficient proof that this chemical action does take place. The therapeutic action of sulphur in cholera merits investigation. I say so from what I have heard and read—not from any clinical experience of its employment in cholera.

In conclusion, I would remark that the treatment of cholera cannot be reduced to any routine formulary, but ought to be adapted to the particular condition of each patient in each stage of the disease.

THE PRINCIPAL INDICATIONS OF TREATMENT may be thus summed up:

1. The "rice-water" vomiting and purging require to be energetically subdued by quinine, sulphuric and

other acids, creasote, nitrate of silver, and such like remedies.

2. In actual and threatened collapse, external warmth, stimulant embrocations, and those internal stimulants which act on the capillaries, are of signal benefit.
3. In reaction, and during convalescence, local inflammations and congestions require to be guarded against or subdued; and rational means must be adopted to restore the secretions of the liver, kidneys, and skin, but particularly of the two former.
4. Lastly, though not of less importance, the character of the fever should be modified, and a repetition of the paroxysm guarded against, by change of air, or by the administration of quinine, which, in the majority of cases, from the existence of anæmia, ought to be conjoined with iron.

SPEECH ON CHOLERA.

Extract from the Report of a Discussion on Cholera on 6th October, 1849, at the Westminster Medical Society.[1] [From the *London Journal of Medicine* for November, 1849, p. 1074.]

Mr. President.—Considering the limited time which remains before the hour arrives at which the meeting must break up, and believing that other Fellows desire to comment on Dr. Webster's essay, I propose to confine my observations to a very few of the topics which I have noted as subjects suggestive of discussion. I must, however, in the first place, remark, that the profession is much indebted to Dr. Webster for the highly practical analysis which he has given of the vital statistics of London during the last six months.

Notwithstanding the appalling mortuary details which have been laid

---

[1] The President, Francis Hird, Esq., on taking the Chair, stated that the Council, in compliance with the known wish of many Fellows, had resolved to resume the meetings some weeks earlier in the season than had hitherto been usual. The great mortality from Cholera, and the questions excited in the profession by the progress and manifestations of the pestilence, would, he believed, form abundant matter for interesting and improving discussion; and he hoped that, in all the circumstances, the Fellows would approve of what the Council had done in thus early convening the Westminster Medical Society.

The paper of the evening was entitled:—

"Health of London during the Six Months terminating 29th September, 1849; more especially in reference to Cholera." By John Webster, M.D., F.R.S.

before the Society, the general inference to be adduced from all the facts is this—*that Cholera is a disease pre-eminently under the control of a well-directed system of preventive medicine and sanitary police.* Be it granted that the pestilence has travelled to us from the far East, and that in addition to Dr. Webster's four causes—viz. 1, atmospheric, 2, local, 3, constitutional, and 4, exciting, there must be added, as an essential, the existence of a specific atmospheric constitution, or, as some would have it, a specific poison; yet we find, that when it does reach our shores, it can hardly find any victims except amid the vapours of grave-yards, cesspools, and open sewers, or in the neighbourhood of swamps and rivers. It appears, then, that though a pervading epidemic influence may be necessary, yet the atmospheric causes, which are of real practical importance as regards the prevention of the disease, are of a comparatively limited and local nature, and resemble the so-called miasmata which give rise to pernicious fevers. These fevers, when only endemic, may assume the intermittent type; but every few years they assume the graver form of remittent or continued fever. Miasmata and such like influences are also potent in the generation of Cholera.

The history of past epidemics, as well as the facts at the present moment under observation, alike testify to this great truth. Comparetti, of Padua, in 1765, described cholera such as has prevailed during the last month in London, under the name of *febbre perniciosa collerica sincopale.* Torti of Modena, and Raimond Restaurant, describe the same disease; and, in 1680, the latter physician treated choleraic intermittent fever by cinchona. Laudanum and cinchona were the medicines in which Comparetti trusted. These physicians speak of the severity of the disease being so great, that the patients sank in the cold stage of the first paroxysm. Was not this Cholera such as has been desolating London? Dr. William Currie, of Philadelphia, speaks of "Cholera with regular periods like a tertian." Such views are identical with those more recently developed so clearly and philosophically by Dr. James Bird, Dr. Charles Bell and others.

The remittent and intermittent type of cholera can be best seen when the disease is studied in families, and in a district, from house to house—all cases, both the slight and serious, being equally necessary to supply materials for its complete natural history. As the result of observations of this kind, I have become firmly impressed with the conviction, that Cholera is a remittent or intermittent

fever—that the recoveries from the cold or collapse stage must be attributed, not so much to the therapeutic action of the medicines administered, as to the inherent or essential character of the disease. In other words, I hold that the collapse of Cholera like the cold stage of a simple ague has a tendency to end in reaction. In both cases, provided the functions of life have not been brought to a complete standstill, some good will arise from the application of heat to the surface, the careful administration of camphor and other stimuli which act rather on the capillaries than the heart—the restraint of the serous exudation from the intestines (except so far as its moderate continuance may be necessary to relieve the hazardous congestion of internal organs during the cold stage) by means of astringent enemata, and, above all, the modification of the character of the fever by means of quinine. In addition to the clinical and other facts already mentioned, certain experiments of Magendie may be cited. That physiologist injected a small quantity of putrid water into the veins of dogs; and he states, that in the intestines there was found an exudation of a matter, in colour resembling the water in which meat has been washed, and which adhered to the mucous coat of the intestine. This is not an intestinal secretion—it is a part of the blood itself. The "rice-water" stools and vomit in Cholera are really and truly hæmorrhagic phenomena, and require to be so treated. To allow them to proceed unchecked, under the idea that morbid matter is being eliminated, is a fatal error, which it only requires calm clinical observation to dissipate. In moderation, they are often useful by relieving congestion; but in the extent to which they usually occur when uncontrolled, they soon render the patient anæmic; and the blood which remains is so inspissated as to be unable to circulate in the small vessels. In each case the special symptoms require special modificatious of treatment, but *the key-stone to the successful management of the disease is this—to bear in mind that Cholera is a fever which has its term, and that the serous purging is an exhausting hæmorrhage, doubly dangerous from causing collapse, and leaving the residual blood in an unavailable condition.**

* By using the expression "serous purging" I do not mean to imply that the watery intestinal discharges of cholera are actually serum. They contain the water of the blood, salts, and albumen, but the latter in very much less quantity than exists in the serum of blood.

CHOLERA-COLLAPSE:

HOW SOME RECOVERIES TAKE PLACE.

CHOLERA-COLLAPSE:

HOW SOME RECOVERIES TAKE PLACE.

When experienced physicians carefully study the cases of remarkable and unlooked-for recovery from various diseases which take place in their practice, they hesitate as to the extent to which the happy issue has depended upon the treatment employed. The greater their acquaintance with analogous occurrences under the use of measures different from their own, the greater is their hesitation to apportion merit to particular therapeutic agents.

On the 16th October, 1866, during the prevalence of cholera in Paris, a discussion arose in the *Académie des Sciences* on Nature and Art in the cure of the disease. Le Verrier twitted the doctors on their want of therapeutic knowledge, and asked Velpeau what ought to be done with a cholera patient if medical assistance could could not be obtained. At the close of a cautious reply, Velpeau said that many diseases—especially acute diseases—are recovered from without the use of remedies, and that there are spontaneous recoveries from cholera. He added:—"In preceding epidemics, remedies of every kind have been tried, and some

patients have recovered ; but I will not undertake to say in respect of any one case, how far the remedy assisted in the recovery."

On reading the report of the discussion at the date of its publication, I made a note of it in my commonplace book, in the words which I have now transcribed. Seven years afterwards, I find that I have made reference to the same note when recording a remarkable recovery from cholera. It is one of those cases which occasionally present themselves to the notice of the medical practitioner to remind him of the soundness of the sentiment tersely expressed by Ambrose Paré under analogous circumstances—"*Je le pansay : Dieu le guarit.*" I do not mean to say or hint, that spontaneous recoveries in the slightest degree sanction therapeutic scepticism. But I hold that they ought to teach us to be logical and cautious in adopting conclusions as to the efficacy of remedies. They ought to remind us, moreover, that when—with successful results—the physician has dressed wounds, administered drugs, prescribed a special diet, and directed particular hygienical observances, it is nevertheless by Nature that the patient has been cured. In this admission, there is nothing humbling to the ministers of the science and art of healing. But it is a call to us, to study earnestly Nature's plans in dealing with injuries and diseases and to strive, as a fundamental principle in our therapeutics, to regulate prescriptions with the view to aid the natural curative tendencies and operations which exist to a greater or less extent in all cases.

In truth, a knowledge of the natural history of disease is the only rational, reliable guide to therapeutic success. This conviction, and the desire to call attention to Nature's behaviour to cholera patients, induce me to publish the fol-

lowing history of a case which, though in many respects a very ordinary case, is pregnant with instruction.

Case of P. B.

On the 25th August, 1873, about 10 A.M., I was asked to visit, with the least possible delay, P. B., described as an Englishman, about thirty years of age, who had been engaged during the summer as an equestrian performer at the Circus in the Champs Elysées. I was told that several doctors had been sent for, but none had arrived; that the case was one of extreme urgency, the patient having had for some hours great pain, severe cramps, and incessant vomiting and purging. On reaching the patient, I found that his state had not been exaggerated. He was in bed, cold, and crumpled up with cramps of the muscles of the abdomen and legs. The countenance was cadaveric and blue, the voice was sepulchral, the vomiting and purging were incessant. The bed was soaked with the alvine discharges, and two or three vessels in the room were nearly filled with his serous dejections. A separate vessel was shown to me containing a considerable quantity of fluid similar in appearance, which was said to have been vomited. The pulse was 42: the tongue was clammy, cold, and shrunken: the respirations—which occurred at long and varying intervals—were shallow and of unequal depth. The patient, notwithstanding his state of physical collapse, was intellectually collected and clear. His demand for water was incessant and urgent. Whilst I was examining his state, and afterwards when writing a prescription, he repeatedly interrupted me by requesting permission to drink some water, looking at the same time at two zinc pails of water

which had been brought for domestic purposes at the moment of my arrival. His wife and others present, without waiting to hear what I had to say on the subject, vehemently objected to his wish being gratified. I held a large tumbler of water to his lips which he vomited in about a minute after he had swallowed it. Tumbler after tumbler was eagerly swallowed and at once ejected. Soon after the administration of the water was begun, pillow-slips containing hot salt were placed between his legs and in close contiguity with all parts of his body. At the same time, I had stupes of hot water and turpentine applied to his inferior extremities and abdomen.

At one o'clock, when the prescribed medicine arrived, I withheld it as there was no indication for its immediate administration. Matters at that time were not getting worse. Although the immense draughts of water seemed to be ejected as soon as taken, the water-drinking was so evidently the gratification of an instinctive craving which I knew had often been useful in similar cases, that I had no hesitation in letting the patient drink as much water as he wished. Reviewing all the circumstances, I came to the conclusion that I ought for some time longer to limit my treatment to a continuance of the measures already instituted—that is to say, to the strict maintenance of the horizontal position, the careful surrounding of the body with warm applications, and the unrestricted gratification of the patient's craving for water. At three o'clock —when I left the patient for two hours—I made no change in the treatment, though for an hour there had been a great abatement in his thirst and very little vomiting. The serous discharges from the intestines were likewise less abundant than when I first saw the patient at ten o'clock. At three

o'clock the general character of the symptoms was very much the same as at ten o'clock, but there existed a number of little signs which, when looked at collectively, clearly proclaimed the dawn of hope. The countenance was less cadaveric: the tongue was not quite so cold: the lividity and coldness of the surface had somewhat diminished: the pulse had risen to 50: and the respirations were rather more frequent, more regular, and deeper. The anxiously looked for therapeutic opportunity seemed to have arrived—the collapse appeared to be approaching its normal close—and the system to be emerging from the complete inertia of the "cold stage," during which drugs produce no effect whatever—during which even Dr. Ayre's poisonous quantities of calomel and morphia neither kill nor cure.

It appeared to me that I might now be able to promote the natural course and safe termination of the cold stage by the cautious use of appropriate astringents and stimulants, with the addition of cinchona as an antiperiodic and tonic. I began by administering a turpentine enema. The beneficial results of this measure were strikingly manifested. The intestines were at once relieved from flatulent distension and from a considerable amount of watery excretion which had therein accumulated: there was at the same time an improvement in the circulation. Immediately after the action of the turpentine enema, I threw into the intestine half an ounce of brandy mixed with half an ounce of decoction of logwood. Seeing that there was now a progressive renewal of vital action I resolved to proceed—carefully and tentatively—with a plan of alimentation and medication. As the desire for simple water had greatly diminished, I substituted weak cold beef-tea, ordering it to be given without stint. In accordance with my instructions it

was abundantly administered. I also prescribed in the form of a draught every three hours five drops of the camphor-chloroform solution, one drachm of the B. Ph. compound tincture of cinchona, and half an ounce of the B. Ph. compound decoction of cinchona. On my return at six o'clock, I was told that nearly three quarts of the weak beef-tea had been administered in small cupfuls and had been forthwith vomited. During my two hours' absence I found that there had been a slow but steady amendment. At this visit, I administered the first of the cinchona draughts prescribed at my former visit, and ordered the treatment in all its details to be strictly continued. I returned about nine o'clock, when I found that there had been neither vomiting nor purging, and a great improvement in the temperature of the body and in the appearance of the patient. I made no change in the treatment. When I saw the patient the next morning, about nine o'clock, his pulse was weak and rapid, his face flushed and his skin hot. I ascertained beyond doubt that he had passed no urine since my visit at nine on the previous evening, and unless he had passed some unconsciously he had not voided any for at least twenty-four hours; that is since my first visit. I obtained by the catheter nearly two ounces, which when tested by heat and nitric acid was found to contain much albumen. With a view of moderately stimulating the system and relieving the probably existing congestion of the kidneys, I ordered a turpentine enema and large poultices of mustard and linseed to the loins. A continuance of the treatment already pursued was likewise enjoined. In the afternoon, sudden and profuse diuresis occurred, which during the evening—the weather being close and sultry—was replaced by sweating which was succeeded by chilliness and a copious discharge from the bowels of the

consistence of thin gruel and having a faintly fæculent smell. This evacuation took place during my evening visit. About midnight he had another stool of a similar character, after which (as I was told in the morning) he became very cold and prostrate. He asked for and had given him a tumbler of hot brandy and water, after which he fell into a profound sleep for five or six hours. Hearing a good account of his progress early in the morning, I did not visit him till noon. I found all going on favorably—strength returning—urine abundant—and digestion of liquid aliment fairly good. Recovery progressed quickly, and I may say satisfactorily, although there were two or three slight checks which could be clearly traced to errors in diet. For the first few days, he was fed principally on arrowroot, and veal soup. During that time he took regularly three times a day an ounce draught of sulphate of quinine and dilute sulphuric acid containing two grains of the former and fifteen drops of the latter. Within a fortnight from the date of his seizure the patient left Paris in pretty much his ordinary health. As he still retained a somewhat anæmic appearance I advised him to take small doses of the citrate of iron and quinine daily before his two principal meals for three or four weeks.

The way in which this man emerged from his collapse is an instructive study. Nature had the lead throughout. No system of cholera-curing was tried, and no vaunted specific was employed. I am far from saying that nothing was done: a great deal was done; but no measure was resorted to which could by any possibility interfere with the *vis medicatrix naturæ*, which, though dormant, was not dead. I kept steadily before me the principles which I espoused in a discussion at the Westminster Medical Society on the

6th October, 1849. I remembered, too, words of wisdom contained in a short paragraph in Baly and Gull's masterly Report on Cholera issued by the Royal College of Physicians of London in 1854. Speaking of the treatment of collapse and imperfect reaction, the reporters say :—"A strict observance of the horizontal position, moderate external warmth, stimulating applications to the extremities, region of the heart, or epigastrium, and the administration internally of diffusible stimuli in small quantities with the free use of ice, cold water, and other diluents *appear to constitute the principal part of the treatment as far as it is yet determined.*"[1]

Among the data on which the reporters' encomium on cold water is based statements by various physicians are quoted. Dr. Blackall says :—"The obvious requirements of the system, and the urgent thirst, were sufficient indications for the use of diluents, and the experience of the profession appears to be uniformly in favour of permitting patients to gratify their appetite for them. Cold water was generally preferred, and good results were often observed when it was taken freely in repeated and copious draughts, although it excited vomiting. In smaller quantities and iced it was refreshing to the system, and allayed the irritability of the stomach."

Reinhardt and Leubuscher are quoted to the following effect from the *Archiv für Path. Anal.*, &c., 2 Band, p. 516: —"The principal result of therapeutical experience during the present epidemic is, in our opinion, the general

---

[1] See p. 216 of "Reports on Epidemic Cholera drawn up at the desire of the Cholera Committee of the Royal College of Physicians, by William Baly, M.D., and William W. Gull, M.D., Members of the Committee." London, 1854.

introduction of the use of ice and cold water. Ice relieves the burning feeling of thirst, and in many cases favours reaction more than the most powerful stimuli.

Continuing the analysis of communications received by the Committee of the College, the reporters thus continue :—" The encomium on the use of cold water is in accordance with the unanimous expression of opinion in the communications made to the College, and is confirmed by other reports. Thus, Dr. C. J. Müller in his pamphlet on the Cholera in Riga, says :—' All observers here agree in the praise of ice and iced water.' I find in the Report on Cholera in the Obuschowschen Hospital, in Petersburgh, it is stated that :—' Warm drinks were avoided as they increased the discharges, and did not revive the patients. Ice and iced water were certainly most serviceable : they refreshed the system without oppressing the stomach.' The desire for cold drinks was not, however, universal. In the severest cases, the patients lay in a state of apathy without expressing any want, and when urged to drink did so with indifference.''

The fact that there are essential differences in cases which in name and physical characters are the same, or similar, fully explains why rules of practice deduced exclusively from numerical statements are more apt to mislead the practitioner than to guide him in the right way. It is only necessary to study any one disease in a certain number of unselected patients as they present themselves in hospital or private practice, to be convinced of the great difficulty of obtaining any considerable number of cases really fit for comparison. If we find in our own experience that the points of comparison are so difficult to adjust, how dan-

gerous it is to be guided by labourers of varying bias in the field of "therapeutic statistics." Particulars are very seldom supplied for testing purposes, and figures are marshalled to support some particular doctrine or idea. This remark applies much more to therapeutical than to pathological inquiries.

There may be an omission or modification in the details of some particular plan of treatment which appear so insignificant to the reporter as not to be stated by him in his history of a case, and yet that omitted something may be looked on as of material consequence by some other inquirer. For example, the *temperature* of the water drunk in cholera-collapse will generally be regarded as material. That it ought to be very cold I believe, though the single case I have related in this paper does not support that view. None of the water which my collapsed equestrian drank was iced, and none of it was very cold, for it was taken from zinc pails in a room at a temperature of 68° F. This is a fair illustration of the kind of disparities in cases which are often ignored by therapeutic statists, who are notoriously prone to efface irregularities of detail in dealing numerically with facts. The defect in question has attracted attention from those who are not members of the medical profession. In 1846, Quetelet, the Astronomer Royal of Belgium, in his work on Probabilities gave an estimate of the value, or rather of the valuelessness of medical statistical data which, though it had lost some of the harshness of its truth by the adoption in later times of improved methods of recording the history and phenomena of disease, is still, unfortunately, not a very inaccurate statement. After pointing out the necessity of informing ourselves by observation, collecting well-recorded facts, and

vigorously testing their fitness for comparison with each other before proceeding to deduce from them a methodical appreciation of causes, he asks :—"Is this what we see in medical inquiries?" And he replies :—"That which we observe is the very opposite—observations which do not admit of comparison are heaped up pell-mell or so arranged as to lead not to an unbiassed conclusion, but to the belief of that which it is wished to establish."

It must be remembered, however, that it is often exceedingly useful to compare clinically the points of similarity or apparent similarity of cases which do not admit of rigid comparison by numerical analysis. Whilst the clinician is observing and noting facts, he is often unable to appreciate the value for comparison of the materials he is accumulating, yet he works on and on with zeal, knowing that he is amassing stores of priceless knowledge on which to muse, meditate, and reason. The circumstances under which recoveries have taken place in cases observed with minuteness and chronicled with fidelity, constitute the only reliable basis of the physician's personal knowledge of the natural history and therapeutics of diseases. It must also be remembered that the detailed clinical study of cases presenting strong points of real or apparent similarity is always instructive so long as we abstain from basing the treatment of our patients and founding our medical beliefs on statistical deductions from masses of cases unfit for comparison, or the fitness of which for comparison we have no means of testing.

In the spirit of the remarks now made I direct the attention of practitioners to the valuable essays of Dr. A. Netter, and in particular to his memoir read before the Academy of Sciences of Paris and also before the Academy of Medicine of Paris in 1872, "On the Treat-

ment of Cholera by the successive administration of enormous quantities of aqueous fluids."[1] The quantities administered were indeed enormous—in some cases more than twenty litres in twenty-four hours. In a paper which he published in 1862, in the *Gazette Médicale de Strasbourg*, Dr. A. Netter states that he had employed the same method of treatment so far back as the year 1858. I subjoin somewhat in detail one of this physician's very interesting clinical histories.

In August, 1864, when Dr. A. Netter, was making the ordinary morning hospital visit at the camp of Chalons, four cholera patients were carried on stretchers into his wards. They had been suddenly seized during the night with diarrhœa—soon afterwards with vomiting, coldness, blueness, and severe cramps. He immediately sent to the pharmacy for a number of vessels filled with a solution of gum in water (*eau gommeuse*) which he directed the attendants to administer to the patients in ceaseless supplies. His orders were carried out. An attendant filled a goblet, which the patient drank, whereupon the goblet was immediately refilled and was again drunk by the patient; and thus, in ceaseless succession, gobletful after gobletful was swallowed. The thirst—as is usual in such cases—having been insatiable, the patients gladly adopted this system. An hour after the treatment had been commenced, when Dr. A. Netter returned to the hospital to see that his orders were being obeyed, he found the patients suffering frightfully from vomiting. To combat that symptom he immediately prescribed that each goblet in place of being filled with

[1] NETTER (A.):—Du Traitement du Choléra par l'administration, coup sur coup, d'énormes quantités de boissons aqueuses. [Gazette des Hôpitaux, for 1872, p. 915.]

gum-water, should contain equal quantities of it and aërated water (*eau gazeuse*). No other change was made in the treatment. The patients when vomiting were not interfered with : as soon as the vomiting ceased, the administration of the liquid was resumed. The treatment was continued till evening, when reaction was established. Next day, convalescence began. On the day after the admission of the four patients whose cases have now been described, four other patients similarly affected were brought in on stretchers—a sufficient proof, Dr. A. Netter remarks, that the cases were serious. The same treatment was adopted and was followed by the same success.

Dr. A. Netter says that these cases produced no impression on his colleagues, who maintained that they were cases of *cholera nostras* which would have recovered under any or without any treatment. Dr. A. Netter's views, however, made an impression on some of his non-medical friends. A General, temporarily resident at Paris, having heard of Dr. A. Netter's pamphlet, wrote to him for a copy of it. The General after receiving and reading the pamphlet addressed a letter to the author from which the following is a slightly abridged extract :—

" I have often seen cholera ; and I had a severe attack of it in 1851. From six in the evening till one next morning, poultices, sinapisms, frictions, ether, and opium failed to mitigate my excruciating pains in the stomach and intestines. At one in the morning, the physician, changing the treatment, gave me two litres of a weak solution of tartar emetic and two litres of a solution of sulphate of soda (*deux litres de lavage émétique et deux litres de sulphate de soude*). By four o'clock, the cramps in the intestines had become feebler, and by five o'clock had ceased. At six

o'clock I fell asleep, and from that time I was convalescent. Your pamphlet has explained what took place in my case."

Dr. A. Netter remarks that although the General's physician attributed his patient's recovery to the tartar emetic and sulphate of soda, it was wholly due to the excipient—that is, to the four litres of water swallowed within the short space of three or four hours. There seems no reason to doubt that the ceaseless drinking of water—pure or medicated—is exceedingly useful in assisting to promote reaction. But still, in each individual case the overwhelmingly difficult question will arise :—To what extent was reaction due to the treatment, and to what extent to the natural tendency to cessation inherent in the state of collapse itself? Patients frequently emerge from profound cholera-collapse *after* but *not*, therefore, necessarily as *the result of* methods of treatment opposed in principle to each other—and sometimes also flagrantly opposed to common sense. All cholera-curers —and they are an innumerable legion—have well-told cases and magazines of statistical data by which to support their statements. That fact ought to impress the clinical inquirer with the necessity of groping his way very carefully guided by the few existing gleams of the light of truth which cheer the dark bewildering chaos of the therapeutics of cholera-collapse. When the proper opportunity has arrived the cautious administration of diffusible stimulants and cinchona will often avail much ; but before as well as after that time has come, the wise physician will do well to believe in Nature, prescribing diluents (particularly cold water) *internally*, moderate warmth *externally*, and a strict observance of the horizontal position. It is under such conditions—whatever other treatment be employed—that the greatest number of patients emerge from the collapse of cholera.

III.

SCARLATINOUS NEPHRITIS.

CASE IN WHICH

TWO ABSCESSES

WERE FOUND IN THE LEFT

KIDNEY,

WITH SOME REMARKS ON THE REAL

CLINICAL SIGNIFICANCE OF ALBUMINURIA.

[*From 'London Journal of Medicine,' for May*, 1849.]

SCARLATINOUS NEPHRITIS:

ABSCESSES IN KIDNEY.

PURULENT deposits are not often met with in the kidney; though, I believe, rather more frequently than some authors admit. On this point, Sir ROBERT CARSWELL, in his *Pathological Anatomy*, makes the following remarks:—"Of all the organs of the body, the kidneys are least frequently the seat of purulent deposits. The few cases which are recorded as examples of this kind appear to have been the result of inflammation extending to the kidneys from neighbouring organs, and succeeding to the operation of lithotomy, to injuries of the spine, to the presence of calculi, and to various diseases of the pelvic viscera. We cannot, perhaps, appreciate the importance of this circumstance; but it is extremely probable, that it is to be accounted for, by the separation of the *material* cause of these depositions from the blood carried into these organs, and its excretion along with the urine."[1]

Carswell's statement requires correction. Perhaps the *non-observance*, as well as the *rare existence* of pus in the kidney, accounts to a certain extent for the small number of published cases containing any record of such an appearance. In examining the kidneys of persons who have died of con-

---

[1] CARSWELL (Robert):—Article, PUS, in his Pathological Anatomy. 4to. London: 1838.

tinued fever,[1] I have at least twice, and I rather think oftener, seen minute points of pus profusely disseminated over the surface of the incised kidney. In both the instances to which I refer the appearance was visible, though not strikingly so, to the naked eye; and with the aid of a pocket-glass of small magnifying power, it was rendered very distinct. No minute microscopic examination was made. There can be little doubt that in such cases, the pus is situated within the enlarged tubuli; and, very probably, it is by the breaking down of the intervening textures, and the coalescing of these minute purulent deposits, that those larger collections of pus, entitled to the name of abscesses, are formed. Rayer mentions several cases of typhoid fever, in which purulent infiltrations and small abscesses were found in the kidney.[2] The patients suffered from cerebral symptoms; but though the urine, in one case, is said to have been acid, and in another, alkaline, no account is given as to the presence or absence of albumen. This is much to be regretted: but he narrates cases of typhoid fever, in which the urine, during life, was albuminous, and in which, on dissection, the kidneys were found to be in a state of hyperæmia, a condition which must be regarded as a stage towards a nephritic affection, which might—had the patient survived and the train of morbid actions advanced—have ended in the formation of pus. Southwood Smith mentions the case of a man, aged 28, who died on the four-

---

[1] One of the cases was true (*i. e.* exanthematous) typhus, in which there was active desquamation of the cuticle when the patient died. I have no record of the eruption having been seen in the other case. In neither, I regret to say, was the urine examined.

[2] RAYER:—Maladies des Reins, t. ii, p. 22, et seq. 8vo. Paris: 1840.

teenth day of typhus fever, in whom the right kidney was externally nodulated, and internally healthy: the left appeared healthy externally, but when cut into, was found to contain several abscesses. In this patient there were likewise effusion within the cerebral membranes; a tubercular state of the lungs; ulceration of the mucous membrane of the ileum and cæcum; also enlargement and induration of the liver.[1] Rayer also details a case of double pneumonia, in which, at the summit of the right kidney, there was a yellow spot, which, when cut into, was found to be a small collection of bloody pus (*un petit foyer purulent et sanguinolent*). There was extensive granular alteration of both kidneys.[2] The same author also mentions a case of cancer of the stomach, in which the patient had complained of pain on pressure over the loins, and in whose kidneys, on dissection, some specks of pus (*quelques grains de pus*) were detected.

Gendrin, in his *Anatomical History of Inflammations*, states that he has met with four cases of purulent deposits in the kidney after smallpox. The appearance seen in one of the cases (which occurred in the Hôpital des Enfants Malades of Paris) is thus described by him:—"The cortical substance of the kidneys was softened, and of a deep reddish-grey colour: the tubular structure could only be recognized from its being somewhat redder, of greater density, and less friability than the true glandular portion of the organ. There were as many small abscesses as cones: these abscesses were of irregular forms, about the size of lentils, and the surface of their cavities was rough, greyish, and studded with numerous brownish-red points. Purulent infiltration around the abscesses was ob-

[1] SMITH (Southwood):—p. 306.

[2] Op. cit., p. 298.

served throughout the whole thickness of the inferior half of the right kidney: in the left, there was purulent infiltration, but there were no abscesses. There was no pus in the urinary passages."[1]

Watson details a case of what appears to have been acute nephritis, arising without any ascertained cause, and terminating in suppuration. An abscess in the right kidney pointed externally. "The pelvis of the kidney was much dilated; and the substance of the gland destroyed, to a considerable extent, by suppuration and ulceration. The ureter, where it left the kidney, was found to be impervious."[2] "Acute suppurative nephritis," says George Johnson, "is not a common disease, but it is a very serious and a very fatal one. In one case it supervened upon chronic disease of the kidney, in consequence of the intemperate use of fermented liquors, by a man whose general health was much disordered, and who had been subject, for several months, to successive crops of boils and carbuncles about the neck and shoulders. He died in about a week after symptoms of suppurative nephritis had manifested themselves. The nature of the disease was detected at the very commencement, by a microscopical examination of the urine. Both kidneys were much enlarged, evidently from a recent attack of acute inflammation: numerous small points of suppuration were scattered through them, and the left contained two large recent abscesses."[3] Dr. Craigie mentions several cases

---

[1] GENDRIN:—Histoire Anatomique des Inflammations, t. ii, p. 256, as quoted by Rayer, in op. cit.

[2] WATSON (Thomas):—Practice of Physic, vol. ii, p. 538. London: 1843.

[3] JOHNSON (George):—Article REN, Cyclop. of Anatomy and Physiology, vol. iv, p. 257. London: 1848.

of renal abscesses, occurring chiefly in strumous subjects.[1] Dr. W. T. Gairdner describes the case of a woman, æt. 27, who died with a peritonitis, sloughing abscess of the spleen, and purulent deposits in the kidney and lung. "The kidneys were of the natural size; one of them contained, in the cortical substance, numerous small abscesses from the size of a pin's head to that of a pea; several of these occurred in groups towards the surface of the kidney. The abscesses were not surrounded by any indurated substance, but by a vascular rim of a rose colour and about half a line in diameter. They contained a bright yellow pus. A little pus was also, in one or two places, infiltrated into the tubular cones near their base. The pelvis of the kidney was highly vascular, but contained no fluid."[2] It may be here observed, that the tubuli (as stated by Dr. W. T. Gairdner) are sometimes blocked up by a white opaque deposit possessing none of the physical characters of pus. In one very interesting case of this kind which he details at length, "the right kidney was broken up superiorly into several anfractuous cavities, from the size of a hazel nut to that of a walnut: these cavities were filled with a diffluent white substance, which had much of the appearance of softened brain. The cavities were lined by a false membrane which contained numerous gritty particles," and which appeared to be "composed of the condensed tissue of the gland." The microscope disclosed these white deposits to be "composed of molecules and granules, interspersed with free nuclei, the debris of the epithelium cells."[3]

---

[1] CRAIGIE (David):—Practice of Physic, vol. ii, p. 510. Edinburgh: 1840.

[2] GAIRDNER (Wm. T.):—Pathology of Kidney, p. 29. Edinburgh: 1848.

[3] Op. cit., p. 15.

Simpson mentions a case of cystous and granular disease of the kidney, which proved fatal from puerperal convulsions. "The right kidney was converted into numerous cysts, of about the size of a walnut, containing unhealthy pus, which passed along the ureter and filled the bladder. The left kidney exhibited an advanced stage of Bright's disease." He mentions two other cases in which "purulent-like matter" was found in the kidneys of patients dying from puerperal convulsions.[1]

Without entering into any further details, it may be stated, in qualification of the opinion of Carswell above quoted, that pus is occasionally, perhaps not very unfrequently, to be found in the kidney in fatal cases of smallpox, measles, typhoid fever, pneumonia, and other diseases distinct from inflammation extending to the kidneys from neighbouring organs, or succeeding to the operation of lithotomy, to injuries of the spine, to the presence of calculi, or to diseases of the pelvic viscera. If this statement be correct—and within certain limits it is incontrovertible—how does it happen, although the kidneys have been long and carefully studied in connection with scarlet fever, that not one of the published necropsies of such cases, so far as I know, contain any record of pus being found in these organs?

It is beyond all doubt, that in a large number, if not in most cases of Scarlatina, there is—during the eruptive fever occasionally, but more often during desquamation—bloody urine, scanty urine, or suppression of urine; and that in these cases the urine is albuminous, and the patients are affected with dropsy, and often with alarming coma or convulsions. When such cases terminate abruptly in death, we commonly

[1] SIMPSON (James Y.):—Proceedings of the Obstetric Society of Edinburgh: in *Edin. Journal of Med. Science*, for September, 1847, p. 212.

find simply hyperæmia of the kidneys, and a choking up of the tubes with epithelium; but if they prove fatal after a more prolonged period, the condition is found which is described as characteristic of advanced nephritis, and which has been so elaborately described by Rayer and other authors in connexion with Scarlatina and albuminous urine. That this affection of the kidney should be so common is not at all surprising, when we remember the frequency of acute desquamative nephritis in connexion with Scarlatina, and look through the microscope at the urine passed by the patients, and find it loaded with epithelium and even with complete casts of the tubes, indicating the activity of the desquamation from the internal coats of the tubuli uriniferi. When this desquamation is excessive, it is easy to see how these small passages must become choked up with epithelium—and thus congestion, causing suppression of urine, and ultimately dangerous inflammation—be induced: but it still remains to be explained how it is that such changes should so rarely terminate in suppuration.[1] Rayer, in the second volume of his *Traité des Maladies des Reins*, p. 428, discusses very fully the subject of albuminous nephritis succeeding Scarlatina, and gives most copious references to all the recent writers on the subject; but in no part of his elaborate chapter does he mention pus having been found in the urine during life or in the kidneys after death in Scarlatinous renal disease; and in volume third, in his article on "Pyelitis," no reference is made to

[1] Dr. GEORGE JOHNSON was the first to use the now generally adopted terms "chronic, and acute desquamative nephritis. *Vide* his admirable essay on Inflammatory Diseases of the Kidney, in the Med. Chir. Transactions, vol. xxx, p. 165. London: 1847. He pointed out that "the desquamation from the inner surface of the tubes is analogous to that which occurs on the skin subsequent to the eruption of Scarlet Fever."

that disease occurring in conjunction with, or as a sequence to, Scarlatina. I have made pretty extensive inquiries among many friends well acquainted with pathological anatomy, and from all of them have received the same answer, that they had neither seen nor read of Scarlatinous renal disease terminating in abscess; nor as yet has any one, except Dr. Peacock, informed me of having seen pus in the kidneys after Scarlatina. That gentleman, however, states that he has seen diffuse suppuration of the kidney. In a note with which he favoured me, of date 23rd January, 1849, in reply to my inquiries, he says:—"I do not know of any published cases of abscesses of the kidney—true abscess, I mean—connected with Scarlatina. I have never seen anything of the kind, though I have found diffuse suppuration in such cases."

Case of H. L. D., aged 7 years and 10 months.

The patient died on the fiftieth day from his seizure with Scarlatina. He was under my charge only during the latter thirteen days of that period. On one occasion, before I saw him, the urine had been entirely suppressed for seventy hours; and during the whole of my attendance it was of extremely low specific gravity, and was intensely albuminous —on some days fully two thirds of its bulk being solidifiable by heat and nitric acid.

On the 24th December, 1848, I was requested to visit this patient, who, I was informed, had been under the care of able physicians. Every particular of the case was laid before me with great precision on this and subsequent occasions, so that I am able to give a complete history of his illness. On the 24th December, when I first saw the boy, he might be

considered as in the thirty-eighth day of the attack, reckoning from the first day on which he complained.

First Day. (17th Nov. 1848.) A slight sore throat was complained of.

Second Day. (18th Nov.) A slight appearance of Scarlatinous eruption was observed. He kept his bed: had two grains of calomel; and also saline draughts and powders every four hours, containing a little antimonial powder and nitrate of potash.

Third Day. (19th Nov.) The patient seemed to be convalescent; there was very slight sore throat; and no eruption was visible. No medicine was prescribed.

Fourth Day. (20th Nov.) There was scarcely any sore throat or ailment of any kind.

Fifth Day. (21st Nov.) There was slightly increased sore throat; but not such as to cause any anxiety in the mind of the medical attendant.

Sixth Day. (22nd Nov.) He was decidedly worse this morning and continued very feverish during the whole day. The treatment followed on the 18th Nov. (*second day*) was resumed.

Seventh Day. (23rd Nov.) There was increased fever; and great drowsiness. Calomel, and the warm bath were ordered.

Eighth Day. (24th Nov.) Drowsiness ceased, and was succeeded by confusion of ideas and delirious talking. When roused, he always knew those around him and answered questions rationally.

Tenth Day. (26th Nov.) The delirious condition continued during yesterday and to-day. The pulse was very rapid and faltering. The glands of the neck were now greatly swollen: the neck was rigid, and the head was thrown back.

The medical opinion as to the possibility of recovery was on this day very guarded. Four leeches were applied to the swollen part on the left side of the throat, and calomel and antimony prescribed. The leeches bled freely.

Eleventh to Fourteenth Day. (27th to 30th Nov.) After the application of the leeches, the more urgent symptoms abated. On the night of the 26th, a considerable ichorous discharge commenced from the nostrils, and continued for a number of days. Between the 27th and 30th, the delirium gradually ceased; and the patient began to have quiet rest. The swelling of the glands subsided. The pulse, however, continued high; and (with the exception of a slight moisture in the flexures of the joints, on the 28th or 29th,) the skin was hot, dry, and harsh (which it continued to be, with very little change, up to the last). At this time, carbonate of ammonia was prescribed; and a certain quantity of beef tea was ordered to be administered to the patient, even though he should not indicate a desire for food.

Fifteenth Day. (1st Dec.) When seen by his medical attendant in the morning, his state was reported to the family to be improved; but, in the afternoon, the nurse became alarmed by a return of the delirium. The alvine and renal secretions seemed to be almost suppressed, and pain with a sense of oppression was complained of at the scrobiculus cordis. Three grains of calomel, with three of antimonial powder were given.

Sixteenth Day. (2nd Dec.) The secretions were improved, and the delirium had subsided.

Seventeenth to Twenty-third Day inclusive. (3rd Dec. to the 9th Dec.) During this period, convalescence appeared to be proceeding; and, on the 5th Dec., he was said to be out of danger. During the whole of this period, however,

symptoms, causing much anxiety, existed; *e.g.* dry, harsh skin, and a pulse never under 120. At this time, he had a bad state of throat, with ulcers, and difficulty in swallowing; but these annoyances gradually ceased. At this time also, he complained of some pain in the region of the stomach, he took the chicken broth, which was ordered, with loathing, and always insisted on having a basin ready, as he expected to be sick. The motions were never deficient in bile; and sometimes seemed to consist chiefly of that secretion. From the 3rd to the 6th December, the urine was of a dark colour, and moderate in quantity. When passed, it was clear; and, on standing, neither became cloudy, nor yielded any precipitate. About the 7th, 8th, or 9th (during which time he was taking acetate of potash) it underwent a decided change: it became much diminished in quantity, and, on standing, exhibited a thick light drab-coloured cloudiness. When tested with heat, no albumen was discovered.

Twenty-fourth Day. (10th Dec.) To-day the acetate of potash was discontinued. The urine had been diminishing in quantity, and now the kidneys entirely ceased to act. There was not one drop of urine passed from the afternoon of Sunday the 10th, to the afternoon of Wednesday the 13th, being a period of seventy hours. During this period, the patient had a strong urinous smell.

Twenty-fifth Day. (11th Dec.) No change of symptoms or treatment.

Twenty-sixth Day. (12th Dec.) A mixture containing chlorate of potash was prescribed. The skin was still hot and dry, and the pulse continued, as formerly, at about 120. He was placed in a warm-bath, after which there was a decided perspiration, an occurrence which never took place during the course of his illness, except on this single occasion.

A blister to the loins was talked of, and sweet spirits of nitre prescribed, as an addendum to the chlorate of potash mixture. Wine was also given.

Twenty-ninth Day. (15th Dec.) The sweet spirits of nitre were not persisted in. The wine was discontinued. The kidneys were acting better. Asses' milk was now given in small quantity, and beef-tea ; but toast-and-water, of which he had abundance, was the only thing he liked. On this day, the state of the patient seemed more favourable ; the pulse fell to 96. [It never was so low again.] He had no tendency to vomit, or nausea after taking food, which he had had for several days previously.

Thirtieth Day. (16th Dec.) Some wine was given during this day, after which the pulse rose to 120.

Thirty-first and *Thirty-second Days.* (17th and 18th Dec.) Stimulants were withdrawn during these two days, and the patient was ordered to have soda-water, with either asses'-milk, sherry, or lemon-juice, and to be allowed to drink largely of cold water. Small doses of grey powder were given at intervals of eight hours. Two table-spoonfuls of blood were lost from the sores caused by the leech-bites. During these two days, the urine came in much larger quantities ; and the general aspect of the patient seemed a shade better.

Thirty-third Day. (19th Dec.) Drs. Willis, Gregory, and Paris held a consultation. There was some albumen in the urine, as there had been since the return of the secretion. The diet was directed by the physicians to consist of chicken-broth and white wine whey. As medicine, they ordered a preparation of cinchona.

Thirty-sixth Day. (22nd Dec.) The last-named treatment was steadily pursued up to the evening of this day ; and at first there was an apparent improvement in the appetite. This

evening he began to retch, and brought up some unaltered blood, in small quantities. In the middle of the night the patient vomited a good deal of black grumous blood. The pulse was 150, and not without power. In these circumstances four drops of Battley's sedative solution were administered; the bark and white wine whey were discontinued; and the soda-water and milk, which the patient always liked, were ordered to be resumed.

Thirty-seventh Day. (23rd Dec.) The ladies and nurse in immediate attendance upon the patient thought him better; and the pulse had fallen to 120. During the day, he asked for some toast. Being supported in bed, he held the knife in one hand and the toast in the other, cut off a piece of butter for himself and contrived to spread it on the bread. He ate a small piece of the buttered bread.

Thirty-eighth Day. (24th Dec.) This was the day on which I first saw the patient. At this time, the family entertained little prospect of his recovery; and I saw nothing to justify my inspiring them with better hopes. I did not suggest any alteration in the treatment, as none seemed called for; and it was arranged that I should meet in consultation on the following day Dr. George Gregory, who had already seen the patient several times.

Thirty-ninth Day. (25th Dec.) The following treatment was agreed to by Dr. Gregory and myself. Three grains of grey powder to be taken immediately; and a teaspoonful of the following mixture three times a day: ℞ Potass. nitrat. gr. xxiv; tinct. digitalis m. xxiv; sacchari ʒi; tinct. aurantii ʒi; aquæ ad ℥iss. M. A warm fomentation of marshmallows was ordered to be applied to the legs.

Fortieth Day. (26th Dec.) 10 a.m. He has less tympanitis and œdema of the instep than yesterday; and there

is less fever. He has had three motions since taking the powder: the bowels had not previously acted since Friday, the 22nd. He complained of great thirst; of much pain in the right arm; also of muscular and articular pains in the left arm. The urine was not deficient in quantity; its specific gravity was 1012; it was highly albuminous.

6 P.M. He has passed four stools, with pain and tenesmus, since the morning. He was ordered to take half the following mixture directly, and the rest, if the bowels were moved, during the night. ℞ Tinct. card. co. m.xxx; tinct. opii m.iij; ol. anisi m.i; mist. cretæ ad ʒvj. M.

10 P.M. Both doses have been taken, and he has had two more stools. There was considerable increase in the tympanitic distension; but he was more comfortable and freer from pain than at six o'clock. In other respects, the symptoms are the same. ℞ Tinct. opii m. v; mist. cretæ ad ℥ij; ol. anisi m.i. M. A teaspoonful after each stool.

Forty-first Day. (27th Dec.) He had a restless night and slept very little. The abdominal distension remained stationary, but the œdema of the instep and ankle were very considerably increased. The urine still continued as albuminous as formerly; and under the microscope exhibited in abundance globules like those of pus, casts of tubes, and crystals of uric acid. To discontinue all medicine.

Forty-second Day. (28th Dec.) He has had much delirium at intervals; great increase of abdominal distension pushing up the diaphragm and causing projection of the ribs. There has been at times stupor; but he has answered questions occasionally. Since the morning of yesterday, he has had four small motions, resembling gruel. When I left him, at 4 a.m. of this day, the distension of the abdomen, the œdema of the feet, and delirium, seemed to be increasing

rapidly from hour to hour; and all the indications were those of speedy death. On returning at

9 A.M., there was no increase of the distension or œdema; and there was a remission, if not a complete cessation, of the delirium. It is worthy of note, that before the delirium came on, he had been taking some white wine whey. The secretion of urine is much diminished; its characters continue the same as formerly.

11 P.M.—He was not worse; and had passed two or three small bilious and fæculent evacuations.

Forty-third day (29th Dec.), 7 P.M.—Since the last report he had passed some small evacuations, which were bilious and fæculent. The quantity of urine was considerably augmented.

Forty-fourth day (30th Dec.).—The amount of distension of the abdomen and of œdema of the legs had greatly abated; and was not more than when Dr. Gregory saw him on the 25th. He had the yolks of two eggs. Shortly after taking the second, while I was present, he had slight nausea, with distressing efforts at vomiting; and he took, with good effect, 30 drops of brandy mixed with about ʒiss of water. With this exception, he had had nothing which could be called medicinal, since the 27th. During this day he suffered greatly from muscular and articular pains in the upper and lower limbs, when they were moved.

Forty-fifth day (31st Dec.).—The urine was increasing in quantity; its specific gravity was 1011. A copious precipitate was produced by heat, which was sparingly soluble in nitric acid. Scarcely any tube-casts were seen; and the number of organic corpuscles was greatly diminished.

Forty-seventh day (2nd January, 1849).—He was visited to day by Dr. Gregory, in consultation. As compared with his state at the last report, there was an observable amendment;

but the progress had been so extremely gradual and steady, that no appreciable change could be detected from visit to visit. Petechiæ were observed on the arms and legs. At 9 P.M. he had the following draught, in consequence of the stools being frequent and relaxed:—℞ Trisnitrat. bismuth. gr. iij, tinct. opii ♏iv, aquæ ad ℥vj. M. This was the only medicine which he had had, since the chalk mixture on the 26th, excepting the brandy before mentioned. Before taking it, he had a refreshing sleep of three hours' duration. The specific gravity of the urine was 1012: it deposited a copious dirty white sediment containing mucous-looking globules and some granular matter: the latter was but slightly affected on the addition of hydrochloric acid, but some crystals of uric acid were formed. The quantity of albumen, as shown by heat and nitric acid, appeared to be diminishing daily.

Forty-eighth day, (3rd Jan.).—He had had a good deal of refreshing sleep. The pulse was 134: it had not been so low since I first saw him on the 24th December. The petechiæ had not increased in number. The state of abdomen was natural. There was less œdema. The countenance was improved. He had passed three ounces of urine since nine last night, of specific gravity 1015: it was clearer than before, very much less albuminous, and contained fewer globules. No casts of tubes had been observed for two or three days.

Forty-ninth day, (4th Jan.).—He had a good deal of delirium and stupor. The specific gravity of urine was 1011: it was almost devoid of albumen.

Fiftieth day, (5th Jan.).—He died this evening, having been shortly before death conscious of what was going on around him, and swallowing nourishment up to the last. He sunk exhausted—the pulse becoming feeble and fluttering, and the respirations hurried.

SECTIO CADAVERIS—made thirty-seven hours after death, 7th January, 1849, (9 A.M. to 1 P.M.,) by myself, and Dr. Alexander Henry. The weather was frosty.

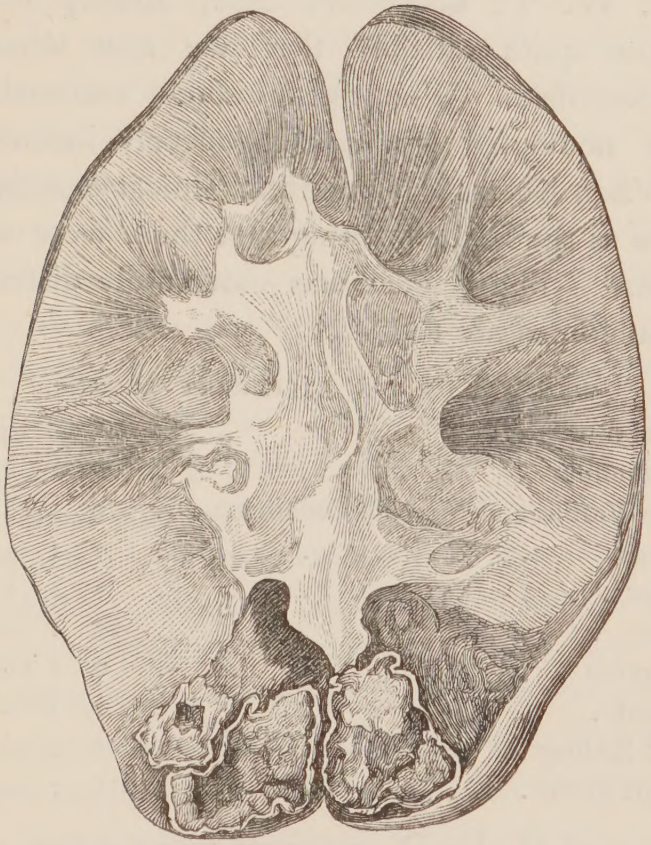
External appearance.—There was no cadaveric expression of the countenance, which was more like life than it had been for a day before death. The body was perfectly flaccid, apparently quite fresh, and exhaled scarcely any odour. It was very greatly emaciated. There was œdema of the hands (especially of the palms), and of the instep. On both arms, the petechiæ, which had been noticed for some days, were observed to be more marked and to be of a more florid aspect than during life. They were also sparsely scattered over the legs, but did not extend above the knees.

Head.—On removing the calvarium, the arachnoid membrane was observed to be distended with serous fluid; and through the membrane, chiefly between the convolutions were seen numerous white consistent flakes. The vessels at the base of the brain were not distended: there was a considerable quantity of fluid effused in this situation, external to the arachnoid. The substance of the encephalon was remarkably firm. On slicing the brain from above downwards, the white and grey matter appeared well marked; and the usual number of red points were seen. On gently pressing the mass, drops of red fluid blood appeared immediately at each point. The right lateral ventricle was very much distended, and contained several drachms of clear fluid, which, on being heated, and tested by nitric acid, was found to contain a good deal of albumen. The choroid plexus was bulky and appeared œdematous: was not distended with coloured blood. The foramen of Monro was sufficiently large to admit a crow-quill. The left ventricle was also distended with fluid and enlarged, but to a much less extent than the right.

Chest.—On opening the chest, the lungs did not collapse. There were between eight and nine ounces of fluid in the pleural cavities, the right containing the larger proportion. The lungs, anteriorly, were pale, and had no appearance of emphysema, but were very œdematous. They crackled when pressed, emitting a frothy serum-like fluid at the margins of the incisions which had been made in them. Posteriorly, the lungs had a purple appearance, most probably depending on gravitation during life, and on cadaveric congestion; they were here also very œdematous, especially at their margins. The *heart* contained a very small black clot in the right ventricle, and about two ounces of fluid blood in the right auricle. In both ventricles were shreds of dense fibrinous coagula. The substance of the heart was firm, but very pallid: it was entirely destitute of fat. The endocardial surface was perfectly smooth, and the valves quite healthy. The pericardium contained some ounces of serous fluid, the exact quantity of which was not determined. The aorta yielded fluid blood.

Abdomen.—The stomach was intensely congested at the œsophageal end; and in this situation, there was a place where the mucous membrane was softened. The rest of the alimentary canal presented nothing remarkable. The *liver* was gorged with blood; but apparently quite natural in other respects. The *gall-bladder* contained bile, of the natural appearance and fluidity. The *pancreas* and *spleen* were firm, and apparently healthy. The *kidneys* adhered loosely to their capsules, and seemed atrophied. They had a mottled appearance, such as is represented in Fig. 1, of a plate accompanying Dr. Robert Willis's interesting paper on the "Dropsy following Scarlet Fever," published in the *Edinburgh Monthly Journal* for 1841, p. 697. On bisecting the

left kidney in the mesial line, it presented the well-known appearance characteristic of "albuminous nephritis," *i.e.* the cortical substance was pale, anæmic, shrunken, and horny, and the pyramids (as contrasted with the surrounding tissue) looked red and turgid. This kidney contained a well-defined, circumscribed cavity at the lower part, which would



admit of a large hazel nut: there was also a smaller cavity, of the size of a small pea, communicating with the other. Both cavities were chiefly filled by dirtyish-white matter, somewhat resembling cerebral matter in a state of softening. Together with this, in the passage between the cavities, and in the pelvis of the kidney at the point where it communicated with the larger cavity, there was some fluid pus—per-

haps in all about half a drachm by measure. That it really was pus could not be doubted, both from its appearance to the naked eye, and from the characteristic pus-globules being well seen under the microscope. Upon examining the dirty-white matter, it was seen, along with some pus-globules, to contain much epithelial débris; and upon comparing it with Dr. W. T. Gairdner's case, already referred to, we became quite satisfied that we saw what he has so well described. The right kidney, externally, had a somewhat nodulated aspect, being deeply indented at the sulci. When bisected, it presented almost exactly the same appearance as the left, excepting that there were no cavities and no pus.[1] The bladder was moderately distended with urine. Subjoined are the

WEIGHTS OF THE DIFFERENT ORGANS.

Cerebrum	21 oz. 13 drs.
Cerebellum	2 : 8
Pons Varolii and Medulla Oblongata	0 : 6
Lungs	7 : 4
Heart	2 : 8
Liver	12 : 0
Pancreas	0 : 10
Spleen	1 : 2
Left Kidney	1 : 10
Right ditto	1 : 4

The case of H. L. D. possesses many points of interest. The whole train of symptoms, the coincidence of Scarlatina with albuminous urine and dropsy, as well as the appearances found on dissection, clearly indicate that the morbid changes were similar to those commonly described by authors under the term Scarlatinous Albuminous Nephritis. Convales-

[1] I exhibited the preparation, and a coloured drawing of the left kidney, at the Westminster Medical Society on the 14th April, 1849.

cence seemed likely to commence at the end of the eruptive fever, when a new fever supervened, in connection with excessive desquamation from the internal surface of the tubuli uriniferi. The epithelium was formed and separated too rapidly, to admit of its being washed out by the urine; the tubes, therefore, became choked up, and the organ, probably already somewhat engorged with blood, was rendered still more so by this obstruction, and a state of extreme hyperæmia was the result. This was proclaimed by the urine becoming albuminous, and the secretion being suppressed from the 10th to the 13th December—a period of seventy hours. The skin and mucous membrane of the lungs acted for the kidneys to some extent, as was indicated by the urinous breath and odour exhaled by the patient. At this crisis he would certainly have died comatose, and probably convulsed, had not Nature found vicarious outlets for the urea and other poisons circulating in the blood.

It is not necessary to suppose that at this stage any irremediable structural change had taken place, such as that found on dissection, viz. obliteration of the veins and tubuli; because we know that mere *congestion of the kidney from any cause* may bring on albuminuria, or even suppression of urine, with the cerebral symptoms which are excited by non-elimination from the blood of urea and other excrementitious products. These phenomena may exist as the results of renal congestion caused by certain morbid poisons, as in congestive fevers and the cold stage of ague and cholera; or as consequences of the irritation of renal cancer or calculus; or from mechanical obstruction to the free return of blood from the kidney, as in the albuminous urine, associated with cerebral disorders of various kinds and degrees, seen in some women from pressure of the gravid uterus;

or, as in many patients, from the pressure of ovarian, aneurismal, and other abdominal tumours. Any tumour pressing directly or indirectly on the emulgent vein must, I believe, induce more or less albuminuria; for the experiments on rabbits by Dr. G. Robinson show that the ligature of that vessel produces this effect.[1] These considerations are of the highest practical value, because they show the importance of daily examining the urine for albumen in the course of Scarlet Fever, as well as during and after that and other diseases in which cerebral seizures and suppressed or diminished secretion of urine are to be dreaded; so that no time be lost on the discovery of albumen, in endeavouring to relieve the kidney from its hyperæmic condition by alvine derivative treatment, by hot fomentations, by large bran poultices, or—when the symptoms are urgent—by cupping over the loins.

But to return to the case under consideration. The cortical substance, so pallid and devoid of blood-vessels on dissection, was greatly altered by long-continued disease. Congestion had, long before death, passed into active inflammation. There had been inflammatory granular exudation into, and around, the tubes, excited by the pressure of the gorged veins; the veins also had become inflamed; and both had subsequently become atrophied by the contraction of the cacoplastic lymph which had been effused. The albuminous condition of the urine, and other symptoms originally caused by mere congestion, were kept up by this state passing into inflammation and thus rendering permanent that which was at first, as regarded the veins, mere obstruction

[1] Robinson (George, M.D.):—On Granular Disease of the Kidney; and its mode of action in producing Albuminous Urine. London: 1842. Dr. Robinson argues ably, and, to my mind, conclusively, in favour of "granular degeneration" being "nephritis."

from congestion with blood, and as regarded the tubuli, obstruction from pressure on their walls by the enlarged veins, and internal choking with epithelium. In granular disease of the kidney, that treatment which relieves renal congestion palliates the symptoms and diminishes the amount of albuminuria; and the sudden but brief amendment, with diminished albuminuria, which occurred in the case of my patient on the 30th December, must be ascribed to the bursting of the abscess having relieved the surrounding congestion previously caused and kept up by its pressure.

It is to be regretted, that albuminous urine is still so much spoken of as specially diagnostic of renal *disease*, as it leads to errors in practice. The opinion of C. J. B. Williams is undoubtedly correct — that, *per se*, albuminuria indicates nothing more than *congested* kidney.[1] The facts already stated confirm the correctness of this view.

In the treatment of patients emerging from Scarlet Fever, and even of those in an advanced stage of convalescence or apparently quite recovered, it is most important to remember, that, from remaining debility, or, more generally, from this cause in conjunction with obstruction of the tubes from excessive desquamation, slight chills are apt to cause hyperæmia of the kidneys, which, when neglected, may originate a formidable, and even fatal, train of symptoms. Diuretics are seldom safe in such cases: though sometimes spiritus ætheris nitrici may be given. Besides the remedial means already referred to, it is important to order as adjuvants (or as prophylactics), the clothing of the entire body in flannel, the use of mild but nutritious diet, and the scrupulous avoidance of exposure to chills, to wet, or to currents of cold air,

[1] WILLIAMS (Charles J. B.):—Principles of Medicine, p. 193. London: 1848.

—not only until desquamation from the skin and tubuli uriniferi have ceased, but till the patient have regained his wonted tone.

Scrofulous children when recovering from Scarlatina require special watching; for, even when they have had the disease so mildly as to be scarcely recognisable, they seldom escape without dropsy of more or less intensity. There is a great proneness to renal congestion in scrofulous children, even when little out of their usual degree of health: this is evidenced by the frequency of albuminuria in them. I have repeatedly found the urine albuminous in the febrile attacks of strumous children; and in a case of tabes mesenterica, with dropsy, which I lately cured (by steady mild purging, cod-liver oil, and syrup of the iodide of iron) the urine at the commencement of the treatment was intensely coagulable by heat and nitric acid. In the diseases of children of scrofulous taint—especially when the skin is harsh and scaly—the urine ought always to be tested for albumen; and, in a large number of cases it will be found to contain it, but will often cease to do so on the exhibition of a smart purgative. Dangerous cerebral complications during convalescence may thus be very often averted.

Essex House, Putney;
April, 1849.

[Writing to me in relation to the case of H. L. D. on 13th Feb., 1875, Professor W. T. Gairdner suggests that possibly the abscess *did not follow, but preceded* the attack of scarlet fever. He says:—"I have seen more than one case of renal abscess terminate in Bright's disease; and it is easy to conceive that a disease like scarlet fever following an abscess might precipitate the fatal termination. This, however, is only a speculation."]

IV.

PUERPERAL CONVULSIONS.

I. Puerperal Convulsions: their frequent dependence on Toxæmia: Explanation of the more Frequent Occurrence of Renal Convulsions in Primiparæ. [*From London Journal of Medicine, June*, 1849.]

II. Note: Dr. Tyler Smith on Puerperal Convulsions.

III. Relations and Differences between Epilepsy and Puerperal Convulsions. [*From London Journal of Medicine, May*, 1849.]

PUERPERAL CONVULSIONS:

THEIR FREQUENT

DEPENDENCE ON TOXÆMIA:

EXPLANATION OF

THE MORE FREQUENT OCCURRENCE OF RENAL CONVULSIONS IN PRIMIPARÆ.

[*Read before the Westminster Medical Society May 12th, 1849; and published in the 'London Journal of Medicine' for June, 1849.*]

PUERPERAL CONVULSIONS.

In observations formerly made, on a Case of Scarlatinous Albuminous Nephritis, it was stated that an albuminous condition of the urine was, *per se*, no sign of *structural renal disease:* that it indicated *congestion of the kidney* and nothing more. I cited the experiments on rabbits made by Dr. George Robinson of Newcastle and likewise a series of clinical facts, as amply establishing this important truth. Among other illustrations of toxæmia caused by the congested kidneys being unable to eliminate excrementitious products from the blood, I mentioned the Convulsions of Pregnant Women.

On the present occasion, I embrace the opportunity of pursuing this subject a little farther, and of endeavouring to show that Puerperal Convulsions are—though not always—yet generally the toxicological results of non-elimination of the excrement of the blood; and that in by far the largest number of cases, this non-elimination depends on renal congestion caused by the pressure of the gravid uterus. When structural renal disease coexists with a gravid uterus, the *risk* of Puerperal Convulsions amounts almost to a *certainty;* for diseased kidneys are liable to have their functions disturbed by slight causes, and are specially disposed to congestion.

Albuminuria and dropsy are symptoms associated with Renal Puerperal Convulsions: and, independent of pregnancy, they have been proved to be sure signs of retardation of the flow of blood in the emulgent veins. The proofs are twofold. *First*, ligature of these vessels in the lower animals induces rapid renal congestion and albuminuria; and *secondly*, the records of Clinical Medicine inform us, that this condition of the urine, and likewise dropsy, are caused by aneurism, enlarged ovary, or any abdominal tumour, producing a similar, even though less perfect, mechanical impediment to the return of blood from the kidney. When we have albuminous urine, we have congestion of the kidney: when we have congestion of the kidney, we have its emunctory office inadequately performed; and whenever the insufficiency of renal depuration of the blood proceeds beyond a certain point, the blood becomes so poisonous as to act toxicologically on the brain. This, it may be observed in passing, is often the explanation of convulsions coming on in the course of Bright's disease. Slight causes may at any time excite such an increase in the congestion as to induce convulsions, stupor, or sudden death.

Dr. Tyler Smith has handled the subject of Puerperal Convulsions more philosophically than any preceding writer: but he appears to me to attribute them rather too sweepingly to irritation of the extremities of the nerves; and, (while he recognizes their influence) to attach too little importance to direct toxæmic impressions on the nervous centres. With reference to the kidney, he remarks:—"Irritation of the kidney has been known to excite epilepsy, and most probably it would act as a cause of Puerperal Convulsions. Lamotte and others have recorded cases of this kind. It is an old remark that œdema of the face and neck forms a fre-

quent premonitory of the attack ; and Dr. Lever has made the interesting and important observation, that albuminuria is present in many instances. These points," continues Dr. Smith, "require farther examination with special reference to the different modes in which spinal action may be excited."[1]

Excluding a case of delirium and convulsions occurring in connection with abortion during Scarlatina—a case briefly noticed by Dr. Tyler Smith at p. 326 as having been seen by him with me—two cases have recently occurred in my practice, or I may say *three*, because one of the patients had convulsions in two succeeding pregnancies. Both were married : and both were primiparæ. The case in which abortion occurred in Scarlatina is extremely interesting; but being a special case, I defer its history, and the remarks suggested by it, to a future occasion.

Case I.—On the 27th October, 1846, at 11 P.M., I was called to Mrs. S., whom I had been previously engaged to attend. It was her first pregnancy; and she was at the full time. From her diminutive stature, narrow pelvis, and excessive abdominal bulk, I had been looking forward to the labour with some anxiety ; and had requested that I might be sent for, as soon as the pains of parturition set in. On my arrival I found that she had been in labour for two or three hours, and that the pains were severe and coming on at short intervals. On examining digitally the state of the os uteri, I found that there was no dilatation whatever. For four or five hours, the pains continued to recur at short intervals : she suffered

[1] Smith (Tyler) :—Parturition ; and the Principles and Practice of Obstetrics, p. 306. London : 1849. At pp. 293-4 of the same work, Dr. Smith recognises the influence of toxæmia as a centric cause of Convulsions.

extreme agony ; and the abdominal muscles were called into energetic action : still, labour hardly advanced, and at 5 A.M. the os was not more dilated than to admit the point of the fore-finger. Till then, she had had no cerebral symptoms ; but about that time, I was alarmed at observing incoherence in her conversation, and stertorous breathing during her short and disturbed slumbers, which at this period occupied the intervals between the pains. Between 5 and 6 A.M. a cathartic draught acted, which had been administered on my discovering, when I arrived, that the bowels had not been moved for two or three days. Immediately after the operation of the medicine, the countenance greatly improved. Dilatation of the os also seemed advancing. As the strength and spirits were good, I had resolved to wait a little longer without interfering : but events occurred, which prevented me from remaining entirely passive. The mouth became contorted ; and she had, within half an hour, a succession of slight epileptic-like seizures, each succeeding attack increasing in severity. The full pulse, swollen countenance, and turgid cervical veins, coupled with the rigid condition of the os uteri, convinced me that the safety of the patient required immediate venesection. In these circumstances, about 8 A.M. I bled her from the arm ; and administered a dose of tartar emetic. The bleeding was twice repeated, from twelve to fifteen ounces being taken on each occasion, and the nauseating effect of the antimony was kept up. The intentions of this treatment were threefold : *first*, to relieve the vascular system ; *second*, to promote dilatation of the os uteri ; and *third*, to moderate the expulsive action of the uterus and abdominal muscles, till such time as the passages should be somewhat relaxed. The convulsions returned slightly during each recurrence of the pains, but with one or two exceptions

the spasms were chiefly confined (so far as I could observe) to the muscles of the abdomen and neck. The pulse upon one occasion, immediately before one of the first more severe seizures, was so low as 50 ; but when the convulsions had almost ceased the pulse rose to 80, which it numbered at noon. At this time, the tartar emetic had been suspended for an hour, and the membranes could be easily felt protruding from the womb : they burst with a discharge of liquor amnii of unusual abundance. After this, the pain caused by the pressure of the hand seemed agonizing, and the nervous excitement of the patient was great. A grain of solid opium was administered. From this time everything went on well: and at 4 P.M. (after a labour of twenty hours) a living child was born. The head was strangely elongated : but in a few days there was nothing unusual to be seen in its shape. The placenta was removed by the hand without difficulty about 5 P.M., when another opiate was administered. The patient had a long and refreshing sleep ; and till this day has had no return of convulsions. She went on favorably for three days, when she was seized with phlegmasia dolens, which made her recovery tedious, though it was ultimately complete. This patient was œdematous in the face and hands and ankles during the latter months of pregnancy : but unfortunately, the urine was not examined before, during, or after labour.

CASE II. The husband of Mrs. H., a married woman, aged 18, muscular, plethoric, of rather short stature, with abundant black hair, and reported to have been always very ruddy when in her usual health, at 9 A.M. on the 5th August 1848, hurriedly sent for me to see his wife. She was in the commencement of the seventh month of her first pregnancy. I found her in a state of insensibility, and emerging from an attack of convulsions, which, from the

account I received, must have been tolerably severe. The os uteri was not dilated to any extent. She had been seen by my assistant two hours previously, at which time she had had no convulsive attack, but complained of pain in the head, noise in the ears, and dimness of vision. The members of her family had observed, on the preceding evening, a wildness in her expressions, and something approaching to delirium. Cold to the head, and a brisk cathartic, had been ordered before I saw the patient; but only the first part of the prescription had been attended to. As the bowels were reported by those in attendance to be confined, as the draught had not been taken, and as the jaws were so firmly clenched as not to admit of anything being got into the mouth, I directed a cathartic enema to be administered immediately — the feet, which were very cold, to be wrapped up in moist warm flannels—and an evaporating lotion for the head, which was very hot, to be diligently used till I returned. The limbs, chest, and abdomen, were of a natural temperature. At this my first visit, the pulse was full, very slow—not above 50—and occasionally intermitting. The tongue was dry, and thickly coated with a yellowish fur. During my visit, the patient's consciousness returned, though her ideas remained confused, and many of her answers to questions were incoherent. She complained of a soreness of the tongue, gums, and inside of the mouth. Her chief complaint, however, was of backache, and pain in the abdomen, which latter was increased on pressure. She complained of intense headache, and much mental bewilderment. After the convulsions had entirely subsided, I observed that the superficial veins in all parts of the body, but especially those in the head, neck, and arms, still remained very turgid. There seemed to be slight general anasarca: at all events, there was well-marked œdema

under the eyes, at the wrists, and at the ankles. The marriage ring on her finger, from its narrowness, seemed imbedded in the flesh. It was this which first drew my attention to her œdematous condition, which might otherwise, as regarded the countenance, have passed with me for extreme plumpness, as, from not having before seen the patient, I was unacquainted with her natural appearance.

I was obliged to be absent from 10 till 12. On returning, I found her in strong convulsions. She lay on her back, in a rigid state, with the head thrown backwards, the face distorted, the mouth foaming, and the breath hissing fitfully through the apertures of the clenched teeth. The muscles of the arms, legs, and abdomen, were in a state of tetanic rigidity, with transient intervals of very partial and slight relaxation. The spasmodic movements of the neck and face were more active and varied. After remaining some time in this state, she struggled violently, sat up, and tore her bed-clothes and dress with her teeth and hands. At this time, or rather just as this active state was abating, the muscles of the abdomen were seen as the painter and the sculptor strive to represent them, when they wish to pourtray extreme athletic tension. On repeating the digital examination, there was still found to be no dilatation of the os uteri. The enema had not been administered, in consequence of the violent resistance of the patient, and the want of tact, or the timidity, of those in attendance. I therefore ordered it to be given immediately; and I waited in the house till the bowels had been relieved by it. After a very abundant evacuation of black, hard, and fœtid fæces, the patient became decidedly more natural in appearance: and I left her about 1 P.M. pretty tranquil, almost asleep, and quite free from any convulsive affection. When I returned at 2 P.M. she

was asleep; and I was told that she had slept continuously during my absence: that at first she had seemed easy, and breathed freely, but that she had gradually become restless and flushed in the face: that she had shrieked suddenly several times: and had, just before I entered, attempted to get out of bed. Her face was of a deep red or almost purple colour her breathing was stertorous, and there was great turgidity of the external vessels of the head and neck. There was slight twitching at the angles of the mouth; I attempted to rouse her by laying my hand on the shoulder, and then gently shaking her: when, immediately—but whether in consequence of, or simply coincident with, this movement of her body, I cannot say—she became seized with violent convulsions, the paroxysm differing in no respect from the aspect of a severe fit of epilepsy. Everything had been already prepared for performing venesection—so I at once opened a vein in the arm. The blood flowed in a full and rapid though unsteady stream: and whilst it flowed, the patient was held with the head and shoulders raised by several attendants. The turgidity of the veins of the head and neck soon abated; and the convulsions, though very frightful during the whole time of the bleeding, had notably diminished in severity before its conclusion. From the condition of the patient, some of the blood was dispersed over the bed and the apartment; but I think the quantity taken was not less, and perhaps a little more, than twenty fluid ounces, apothecaries' measure. The bleeding greatly relieved the embarrassed respiration, and considerably diminished the stupor; but the convulsions, though decidedly less severe and of a less apoplectic aspect, continued to recur about once every hour till 9 P.M. The first symptom of a coming convulsion was her raising her hand to the head, turning up the

eyes; and before some of the seizures, in addition to these threatening signs, she shrieked. After the bleeding, I had ordered an antispasmodic mixture containing opium, valerian, and assafœtida, to be regularly taken at short intervals, but —as I can testify from the trials I made myself—it was quite impossible, without causing dangerous excitement, to make any forcible or even persuasive attempt to get her to swallow a dose of this or any other medicine. When apparently conscious of what she was doing, she was violent, reckless, and obstinate in her behaviour—in fact, maniacal. The vein was re-opened, and about ten ounces of blood were allowed to flow. A turpentine enema was also administered, which produced a copious motion similar in character to the former. These measures were adopted about 7 P.M.; and an hour afterwards, a starch enema, containing a drachm and a half of the Edinburgh College solution of the muriate of morphia,[1] was administered. At 9 P.M., there was a

[1] The following is the formula for this preparation. Take of Muriate of Morphia, one drachm and a half; Rectified Spirit, five fluid ounces; Distilled Water, fifteen fluid ounces. Mix the spirit and the water, and dissolve the muriate of morphia in the mixture with the aid of a gentle heat.

The uniformity of strength makes it preferable to the Tincture of Opium, when large doses are given, and may have to be repeated. The London Pharmacopœia contains no officinal formula for prescribing the muriate or acetate of morphia, which is an inconvenient omission: but it gives instructions for preparing the salts—instructions of no practical value to the physician or the pharmaceutist and which the manufacturer would be sorry to take as his guides. [Since the three Pharmacopœias of London, Edinburgh, and Dublin have been merged in or rather superseded by the British Pharmacopœia these strictures are no longer applicable; and before the issue of the British Pharmacopœia, a *Liquor Morphiæ* Acetatis, and a *Liquor Morphiæ Hydrochloratis*, had been admitted to the Pharmacopœia of the London College.]

little dilatation of the os uteri. The patient was calm; and when I examined the abdomen with the stethoscope, there was not the slightest muscular spasm. I could not detect the sounds of the fœtal heart; and from the patient's statements, together with this negative evidence, I announced my belief that the fœtus was probably dead, and that any operative interference, which might be required for the mother's safety, ought not to be objected to from the hope of a living child being ultimately born. Between 9 and 10, when I left her, she seemed disposed to sleep, breathed easily, and was perspiring. I gave instructions to the attendants to administer the mixture formerly prescribed; and to send for me if the convulsions returned, or if labour seemed to be advancing. To my surprise, I was not sent for during the night. It may here be stated that hardly any urine was passed by the patient, during the twelve hours that I was in pretty close attendance upon her; and it was averred by her, that she had not made any for many hours before her seizure. For some days before that time, it was more abundant than natural. As to these facts, however, there was some ambiguity in the evidence. The important point, as regards the urine, is this—that what she passed (about two ounces) when I was with her, was found *intensely albuminous*, when treated by heat and nitric acid. The blood, especially that taken at the first bleeding, was cupped and buffed.

6th August. At 7 A.M., I found her in a quiet sleep: and was told that she had passed a tranquil night. Two doses of the antispasmodic mixture had been taken. The pulse was 74; and the skin moist. In the evening, she continued as well as in the motning. During the day, she took some beef tea, and one or two doses of the mixture. There were some slight pains during my second visit, and an examination

was then made, by which it was discovered that the os uteri was a little more dilated.

7th August. During this day, she continued in a comfortable and tranquil state, and sat up for some hours in the evening. When questioned as to her feelings, she said that she had some headache, and occasional pain in the back and abdomen. The os uteri was sufficiently dilated to admit the point of the fore-finger. There was no preternatural heat of the part, and the digital examination caused no pain. No medicine was prescribed or taken. She had two copious motions of an improved appearance. The urine was abundant; and was very slightly albuminous.

8th August. In the afternoon, when I called, the report of her state since my last visit was favorable. Her countenance was natural: but she complained of pain in the back, and also of headache. The urine was not chemically examined: it was sufficient in quantity. The bowels had not again been moved. The breasts, which all along had been somewhat turgid, were now painfully swollen: they were hard, knotty, and tender to the touch: a milky fluid exuded from them in such abundance as to require frequent change of linen. A dose of sulphate of magnesia was prescribed; and I directed that an hour after it had been taken, a draught of henbane and valerian should be administered.

9th, *10th*, *and 11th August.* The urine was very slightly albuminous. During these days, the state of the mammæ was the only troublesome symptom. This was treated by gentle frictions, fomentations with poppies when the pain and tension were great, and by doses of sulphate of magnesia and tartar emetic, sufficient to keep up a watery discharge from the bowels. When she lay down, the headache returned, for which reason she was up and dressed during the greater part of

these three days. As she was up when I called, there was no digital examination made.

12*th August*. During the night (between the 11*th* and 12*th*) she had some slight convulsive attacks, and during the day, several of great severity. Her condition was so alarming, that I could not leave her even for a short time without anxiety; and during my short necessary absences, my assistant remained with her. She had convulsive attacks with the same periodic regularity as the pains in ordinary labour. Generally she remained insensible. It was evident that with each fit the uterus was becoming more dilated, and was actively preparing for the process of expulsion. Though considerable progress was being made, yet from the great remaining rigidity of the os uteri, and the apoplectic aspect of the patient during the convulsions, I repeated the bleeding to the extent of about six ounces; and resolved, whenever the os uteri became a little more dilated, to perforate the head and extract the fœtus. After the bleeding, however, the dilatation proceeded so rapidly, and the convulsions so greatly moderated, that I watched anxiously, but did not farther interfere. At 6 P.M., a dead fœtus was born without there having ever occurred what could be called labour pains. Her state throughout was generally one of insensibility; and the expulsive process went on steadily during each fit of convulsions, which recurred in paroxysms as regular as ordinary labour pains. She made a complete and rapid recovery. Within a week, she was going about as if nothing had occurred to her. Her feelings of comfort were such, that all my cautions were thrown away; but fortunately, no bad consequences resulted from the little care which she took of herself. I discontinued my attendance about the end of August.

Very soon afterwards she became pregnant; and in consequence was much harassed with headache, nausea, and vomiting. I did not, however, see her again professionally, till the 21st of January, 1849, when I was, as on the first occasion, hurriedly sent for. I was told that she had just come out of a severe convulsive attack, similar to those from which she had formerly suffered. I found her not convulsed, but in a state of stupor, from which, however, she emerged speedily, though she continued in a somewhat stupid and bewildered state. The os uteri was soft, and dilated to nearly the size of a shilling. From this state of the womb, the regular recurrence of labour pains—or rather of uterine contraction accompanied by convulsions—and the absence of the alarming apoplectic symptoms which had characterised the convulsions which occurred in her first pregnancy, I thought that abortion would occur sufficiently soon to put the patient out of danger, and obviate the necessity for active treatment. After sufficient purging, anodynes were freely given. My prognosis, as to the speedy occurrence of abortion, proved erroneous; for the uterine contractions and the convulsions both subsided within twelve hours, the patient got quite well, went about with her dilated uterus, and did not miscarry for two months. Abortion took place on the 23rd of March. From the 22nd of January to the 20th of March, she enjoyed tolerable health, and had no recurrence of the convulsions. When she allowed a day to elapse without going to stool, she suffered from headache and giddiness, but a little care in regulating the bowels obviated these unpleasant symptoms. On the 20th, labour pains set in, and continued, with longer or shorter remissions, till a dead fœtus, of apparently between the 6th and 7th month, was expelled on the 23rd of March, without much suffering, and without

the recurrence of convulsions. After the abortion, she made a speedy and complete recovery; and has since enjoyed good health.

I propose now to offer some observations suggested by the preceding cases, but in a great measure applicable generally to the subject of Puerperal Convulsions.

It has long been familiarly known to practical obstetricians, that convulsions are to be dreaded in women who have become œdematous during pregnancy; but till very lately the meaning of the sign was not attended to, and even yet has not been fully appreciated. In a work on Obstetrics, published in America during the present year, Dr. Meigs, in speaking of *œdema gravidarum*, says:—"It is proper to remark, that women, who are very much swelled, are to be deemed far more liable to Puerperal Convulsions, than such as have no swellings; for these infiltrations, produced by pressure on the ascending venous columns, suffer a similar pressure under the descending arterial columns of blood; which gives cephalic engorgement. Good care should be taken to obviate such dreadful attacks. To be forewarned, is to be forearmed."[1] It would be strictly correct to go farther than Dr. Meigs, and to say, that Puerperal Convulsions very rarely occur in women who are not œdematous to a greater or less extent. It would likewise be true to say, that, together with the dropsy, there exists an albuminous condition of the urine. Many women have slight œdema and albuminuria, and some have both to a considerable extent, and yet escape convulsions; but, if we exclude hysterical convulsions, and convulsions from anæmic affections, which are not peculiar to the puerperal state, very few, if any, of those affected

[1] MEIGS (Charles D.):—Obstetrics: the Science and the Art, p. 206. Philadelphia: 1849.

with true *eclampsia gravidarum* are not the subjects of anasarcous effusion and albuminuria. Attention was, I think first directed to the coincidence of albuminuria with Puerperal Convulsions by Dr. John Lever. He announced the fact, that in nine out of ten cases in which he had examined the urine, it was found to be albuminous.[1] Drs. Devilliers and Regnault, in a valuable memoir on the Dropsy of Pregnant Women (published during the years 1848 and 1849 in the *Archives Générales de Médecine*) declare, as a remarkable and essential fact, that "chez *toutes* les femmes éclamptiques, on trouve de l'albumine dans les urines. Cette régle ne nous a pas encore paru souffrir d'exceptions."[2] If it be a fact, then, that albuminous urine and anasarca—the characteristic signs of congested kidney—be so common in Puerperal Convulsions as to be regarded by the best and most recent authorities as their constant concomitants, it may, I think, be very safely inferred, that the renal congestion is the cause of the convulsions; or, to be more explicative and precise—that the convulsions result from direct toxicological action on the nervous centres, produced by poisonous substances which the unembarrassed kidney could throw off with the urine, but which the congested kidney cannot excrete. In pregnant women, blood-poisoning exists far more commonly than is generally believed. There is a series of phenomena resulting from different degrees of toxæmia—such as nausea, vomiting, coma, delirium, convulsions, and mania—which may, on a subsequent occasion, form, either separately or collectively, the subject of another paper.

---

[1] Lever (John), in Guy's Hosp. Rep., *Second Series*, p. 495. London: October 1843.

[2] Devilliers et Regnault:—Archives Gén. de Médecine, 4me Série, t. xvii, p. 295. Paris: Juin, 1848.

It is important to remember, that the gravid uterus, or other tumour, pressing on the renal veins or in any way seriously impeding the return of blood from the kidneys, must induce more or less inability on their part to perform their emunctory office; and, when the pressure is great, a consequent condition of toxæmia. It must also be remembered that the maternal blood during utero-gestation, notwithstanding the demands made on it for phosphate of lime, &c., by the fœtus, requires, in some respects, an extra degree of depuration, and that, therefore, the pregnant woman can very ill bear an impediment to the free return of blood from the kidney. She probably requires for her preservation in health to throw off a large additional amount of excrementitious matter from her blood, as it is charged with the matter depurating from the fœtus, in addition to the ordinary depuration essential to her maintenance in health in the non-pregnant state. The elements of the milk also require, during utero-gestation, to be thrown off by the kidneys; and "kiestein," which may generally be found in the urine after the second month of pregnancy, is presumptive evidence that this depuration is going on; for Dr. Golding Bird, Dr. Peddie, and others, have shown that this product contains some of the elements of the milk.[1] Dr.

[1] PEDDIE (Alexander):—On the Mammary Secretion, in Edinburgh Monthly Journal of Med. Science, Aug. 1848. He says:—"With the aid of the microscope, I have fully satisfied myself that this product (kiestein) contains some of the elements of the milk." This observation of Dr. Peddie may be doubted by some, because kiestein has been found in the urine of non-pregnant women, and even in the urine of men. Its presence indicates that a species of depuration is going on; but with the nature of that depuration we are not as yet fully acquainted.

Golding Bird says :—"the imperfectly formed secretion of milk, not having a ready exit by the mammæ, is taken up into the circulating mass, is separated by the kidneys, and eventually escapes from the body by the urine."[1] Many of the distressing symptoms which so often attend pregnancy ought, I think, to be considered as resulting from toxæmia dependent on defective sanguineous depuration, and treated accordingly. I must not be understood as saying that diminished renal elimination is the only cause. The skin, the lungs, the liver, or the kidneys, may one or all be in fault : but, from the pressure of the gravid uterus, the kidneys run the greatest risk of having their functions impaired. If the kidneys be embarrassed from the congestion caused by the gravid uterus, urea and likewise the elements of the milk will remain in the blood. The non-elimination of the lacteal elements is much less dangerous than the retention of carbonic acid in the lungs, or of the poisonous principles of the bile and urine ; for the former, being oleaginous, saccharine, and albuminous, are not very dissimilar to the constituents of the blood. Milk fever, however, which ought to be regarded as truly a poison-disease, is sometimes pretty severe, if active derivative treatment be not adopted. The state of the mammæ in the case of Mrs. H. merits special notice. In her, most probably, the elements of the milk were not adequately got rid of by the kidneys.

The convulsions occurring in virgins and others at the menstrual period—commonly known by the name of Uterine Epilepsy—are often reflex phenomena ; but they may in many cases depend on toxæmia, sometimes acting as a predisposing, and at other times as a centric and direct cause : for

---

[1] Bird (Golding), in Guy's Hospital Reports, April, 1840.

the poisonous nature of menstrual blood, and its highly carbonized constitution, is believed in by physicians and chemists.

The same remarks apply much more strongly to the lochial discharge. Its suppression, like that of the menses, may induce attacks of Uterine Epilepsy, or, to use the other name, Puerperal Convulsions. In such cases of post-partum Puerperal Convulsions, should no structural disease of the kidney exist, the urine is not likely to be albuminous, nor the surface œdematous: but I am inclined to think, from cases which have occurred under my own observation, that anasarca is present in a large proportion of those cases in which convulsions occur from suppressed menses.[1] In such circumstances, I have seen anasarca, albuminous urine, and lethargy, which were soon relieved by purging—more serious results having been probably averted by this treatment. There may have existed renal congestion in some of these cases.

It generally happens that when the uterus is emptied, the convulsions cease: and they seldom recur after delivery. When they do recur, we must suspect an insufficiency in the lochial secretion, or structural renal disease. The explanation of delivery generally arresting the convulsions, is not only that the uterine irritation is lessened, but also that the kidneys are relieved from their hyperæmic condition, and have so become enabled to resume the proper exercise of their functions.

---

[1] I have published cases of Convulsions and Mania from suppression of the catamenia, in an Essay on Transient Insanity, in the Edinburgh Monthly Journal of Medical Science, p. 903, vol. for 1843. Cases detailed in that paper are illustrations of toxæmia. [In these Volumes of Clinical Studies the essay on Transient Insanity is reprinted with additions.]

By adopting this view, we obtain an EXPLANATION OF THE MUCH GREATER FREQUENCY OF PUERPERAL CONVULSIONS IN PRIMIPARÆ.

The individuals most commonly the subjects of Puerperal Convulsions are strong healthy young women, pregnant for the first time: that is to say, a class of patients in whom the abdominal walls are the most unyielding and the least able to relax under the pressure of the expanding womb. Dr. Collins says that "Puerperal Convulsions occur almost invariably in strong plethoric young women with their first children, more especially in such as are of a coarse thick make with short thick necks;" and "in thirty cases which occurred during his mastership, twenty-nine were in women with their first children; and the other single case was a second pregnancy, but in a woman who had suffered a similar attack with her first child."[1] Some of the particulars of this case are detailed by Dr. Collins. Convulsions occurred after as well as during labour, which leads us to suppose that the toxæmia did not depend mainly, or at least not entirely, on renal causes. The patient may, however, have been the subject of such structural renal disease as to facilitate the production of dangerous congestion; or she may have had some ovarian or other tumour causing similar tendencies. The uterine excitement may also undoubtedly, in some cases, be the immediate cause of exciting convulsions in those in whom toxæmia pre-existed remained latent as to its effects, being only of sufficient intensity to operate as a predisposing cause. Dr. Joseph Clarke mentions

[1] COLLINS (Robert):—Practical Treatise on Midwifery, containing the result of 16,654 births which occurred in the Dublin Lying-in Hospital, p. 201. London: 1834.

nineteen cases of Puerperal Convulsions, of which number sixteen occurred in primiparæ.[1] Dr. S. Merriman met with forty-eight cases, and thirty of them were in primiparæ.[2] Dr. Lever, in his paper already referred to, notices that eight out of his fourteen cases were in first pregnancies. It would be interesting to know how many of the eight had ever gone to the full time, as well as other particulars with which we are not furnished. Chailly observed thirteen cases at La Clinique of Paris, of whom nine were in primiparæ: Dr. Johns, quoting from the ward-book of the Dublin Lying-in Hospital for a period of two years, mentions that of nine women who had convulsions, and twelve who were threatened with them, all except two were pregnant for the first time. These two had had convulsions in previous labours. It is to be regretted that many of the most esteemed authors, in giving their experience in this class of cases, do not state how many occurred in first births: but the above accounts being taken without selection from such works as I have access to, may be considered as probably offering a fair view of this question in obstetric statistics. It is not perhaps necessary to multiply citations of this kind, as the fact of primiparous women being the most subject to convulsions is generally recognised: but I may just add, that I am now, as leisure admits, engaged in an analysis of all the reported cases of Puerperal Convulsions, and find that as the number of cases augments, so, in like proportion, is the augmentation in those which were first pregnancies. At present the following tabular recapitulation may suffice.

---

[1] COLLINS:—Op. cit., p. 200.

[2] MERRIMAN (Samuel):—Synopsis of the Various Kinds of Difficult Parturition. New Edition, p. 148. London: 1838.

By whom observed.	First Pregnancies.	Subsequent Pregnancies.	Total cases.	Whence quoted.
Collins	29	1	30	Collins, op. cit., p. 201.
Clarke	16	3	19	Collins, op. cit., p. 200.
Merriman ...	36	12	48	Merriman, op. cit., p. 148.
Lever	8	6	14	Guy's Hosp. Rep., 1843.
Chailly	9	4	13	Chailly, by Bedford, p. 265.
Johns	19	2	21	Dub. Journal, Sept. 1843.
Total...	117	28	145	

In primiparous women there is—as a general rule—a greater tenseness and rigidity of the abdominal parietes ; and therefore in them the gravid uterus is much more apt, by its inward pressure, to cause dangerous renal congestion. *This obviously explains why primiparæ are the most liable to Puerperal Convulsions ;* and why convulsions in them are chiefly of a renal, and therefore of a severe and epileptoid character. It is probable that in them albuminuria is associated with œdema of the face and upper part of the body, which is sometimes seen in many of those who escape convulsions : for it must be remembered that *the albuminuria and œdema are simply signs of congested kidney*, and that congestion may exist—and indeed often does exist—to an extent quite sufficient to cause these phenomena, and yet be inadequate to produce toxæmia of sufficient intensity to cause convulsions. The presence or absence of an immediately exciting cause will often determine whether the blood-poisoned pregnant woman suffer from or escape convulsions.

The frequent omission of details renders it impossible to make a complete analysis of the history of those cases in

which convulsions occurred in subsequent pregnancies: but the result of my inquiry is, that all the fully reported cases which in their mere numerical aspect limit the rule, on a scrutiny tend to establish it. These cases may be considered as chiefly toxæmic; but some are non-toxæmic. Patients having convulsions of toxæmic origin may all be classed under four heads:—viz. 1. Persons who, though previously pregnant, had never gone to the full time, and in whom, therefore, there had been no relaxing of the abdominal walls; 2. Persons of extreme muscular development, whose rigid fibres do not readily yield to the augmenting womb; 3. Persons who, from organic changes in the structures of the kidney, cannot adequately perform renal depuration of the blood; among whom may be included—those suffering from granular or other structural disease of the kidney; or who have some congenital anatomical peculiarity in these organs;[1] or in whom some morbid growth presses on the emulgent veins, or, indirectly by its presence, impedes the free flow of blood through these vessels. 4. Excessive volume of the uterine tumour, as in cases of plural pregnancy and superabundant liquor amnii.

[1] This remark brings to my recollection a remarkable case, of which the following brief outline is given by Dr. ROBERT LEE, at p. 112 of his Clinical Midwifery.—"A young woman, in the sixth month of her second pregnancy, died of chorea, on the 29th August, 1840, in St. George's Hospital. The symptoms were at first slight, and were apparently produced by fright. The convulsive movements became so violent, that it was found necessary to put on the strait-waistcoat, and fix her down to the bed. Forty-seven hours before death the contents of the uterus were expelled. The brain and spinal marrow were perfectly healthy. There were some small vegetations in the mitral valves; the right kidney and ureter were wanting; the supra-renal capsule was present. The uterus was in a natural state. The corpus luteum was unusually small, and the coats of the Graafian vessels could scarcely be seen within the yellow matter."

The *first* class is very numerous. It embraces the second attack of my patient, Mrs. H.

The *second* class also includes a number of cases.

The *third* class is not numerous: but it is important, when we recollect how often, in the course of Bright's disease, when we have greatly relieved the head symptoms, and reduced the œdema and albuminuria by derivative treatment, convulsions or death abruptly occur from exposure to cold, from some error in diet, or from other accidental cause. In such instances the coagulability of the urine returns to its greater degree of intensity. It is quite plain that a pregnant woman labouring under Bright's disease, even in an early stage, must in this way run a tenfold risk of convulsions. If she have an ovarian tumour, or any other mechanical predisposing cause of renal congestion besides the gravid uterus, her risk will also be great. In her, too, delivery will hardly bring exemption from the danger of toxæmia from renal non-elimination. Simpson said, in 1834,[1] that he had been accustomed to teach in his Lectures, that "patients attacked with Puerperal Convulsions had almost invariably albuminous urine, and some accompanying or rather preceding dropsical complications, *and hence probably granular renal disease*." This latter remark of Simpson, with deference to so high an authority, I must dissent from. Under proper management, the majority of those affected with Puerperal Convulsions quickly and perfectly recover, and in future pregnancies are very rarely affected. Undoubtedly, women who have structural disease of the kidneys are pre-eminently liable to renal congestion and consequent toxæmia: but then œdema, albuminuria, and convulsions,

1 SIMPSON (James Y.):—Edinburgh Medical Journal, Nov., 1843, p. 1015.

are not in the puerperal woman pathognomonic of any organic disease of the kidney, though in the *fatal* cases we may expect them to be often present. Simpson's cases, to which I formerly referred, are interesting in this point of view. In three fatal cases of Puerperal Convulsions he found on dissection a great amount of renal disorganization. Albumen was looked for in the urine during life, but was not found.[1]

The *fourth* class of cases is interesting. More accurate statistics, than those yet given by authors, are required, before we can do more than state generally that a bulky uterine tumour predisposes to convulsions: and that in some its presence may render a subsequent pregnancy as liable to them, and in the same way, as the rigid parietes of a primipara. The facts which best illustrate this position, are such as the following:—Dr. Collins, in 240 cases of twins, had three cases of Convulsions: and in his grand total of 16,654 labours, he had only thirty cases of Convulsions; hence, in twin cases there occurred 1·25 per cent., and in single pregnancies 0·18 only per cent. Two of Dr. Merriman's 48 cases of Puerperal Convulsions were twin cases; and so were two of the thirteen cases reported by Chailly. It is to be regretted, that Drs. Merriman and Chailly do not give the total number of labours in which these cases occurred. With regard to some of the convulsions which occur after delivery, it must be borne in mind that they are not toxæmic but truly anæmic; and in some of the twin cases in which there was much hæmorrhage, want of blood seems to have been the cause.

Some authors have explained the fact of the *unmarried being more subject than the married to Puerperal Convulsions* by

[1] SIMPSON (James Y.):—Proceedings of Obstetric Society of Edinburgh, in *Edinburgh Medical Journal* for September, 1847, p. 212.

assuming, that in the former, greater emotional causes are present. Another explanation, however, is more in accordance with the series of facts now brought forward. Allowing that emotion may often, both in the married and unmarried, be concerned as an accessory cause; and allowing also that emotion may even sometimes be the proximate cause of exciting convulsions through a brain[1] already in an apt state to be so influenced from pre-existing toxæmia; yet, as regards those who have become pregnant out of wedlock, it seems natural to infer that the tight girding of the abdomen, which they so often practise to an extraordinary extent to conceal their shame, may act most powerfully in producing extreme renal congestion and consequent intense toxæmia.

Death of the fœtus in Mrs. H. seemed, in both pregnancies, to precede the attacks of convulsions. This observation is important, because when this event takes place, there is inevitable toxæmia, which may be looked on as nature administering a poison for the purpose of accomplishing abortion. If the fœtus die, the matters which were being taken out of the mother's blood for its growth, suddenly cease to be required: and the depuration by the fœtus also ceases.[2] In these circumstances there must necessarily be more or less toxæmia. When the supply of material for the fœtus from the uterine vessels of the mother suddenly ter-

[1] The brain, properly so called, can, we suppose, have, in any circumstances, but an indirect share in causing convulsions, which depend on the spinal column and medulla oblongata. The acephalous fœtus generally dies of convulsions.

[2] The meconium with which the bowels are distended at birth, and the urine found in the bladder, are clear proofs of active fœtal depuration. If the fœtus performed no blood-moulting for itself, it would not contain within it deposits of excrement, nor would it be so liable to diseases similar to those of extra-uterine life.

minates by its birth at the full time, the lochial discharge comes to her relief, and so long as it is in sufficient abundance she has small hazard of toxæmia. That prevention of toxæmia is the object of the lochial discharge cannot be doubted when we contemplate the phenomena which arise when its flow is scanty or suppressed; and when we see that in most instances in which women who do not nurse their infants and yet enjoy good health, it continues to flow for six weeks in place of ten or fourteen days. When convulsions occur or recur after delivery, the toxæmia most probably arises from imperfect excretion or complete suppression of the lochia: but it may also depend on the kidney being congested from structural disease, or from pressure on the veins caused by the morbid enlargement of some neighbouring part.

It must be borne in mind, that though the puerperal woman is liable to convulsions from special causes, she is also subject to them from others which act on persons who are not gravid; though from some convulsive attacks, *e.g.* epilepsy, she seems very frequently to be respited in virtue of her pregnancy. The following arrangement of convulsive affections with reference to their causes, as they occur both in the puerperal and non-puerperal states, seems to be correct and convenient.

ALL CONVULSIONS ARISE FROM

1. Toxæmia, 2. Anæmia, 3. Hyperæmia, or	acting directly on the spinal column and medulla oblongata.
4. Irritation of the extremities of the nerves,	acting in a reflex manner on the spinal column and medulla oblongata.

The sources of toxæmia causing convulsions are very various. They may be thus succinctly arranged.

SOURCES OF TOXÆMIA CAUSING CONVULSIONS.

I. Defective Depuration of the Blood.	1. Non-evolution of carbonic acid, &c., by the lungs. 2. Non-elimination of the principles of the bile from the blood. 3. Non-elimination of the principles of the urine from the blood. 4. Non-elimination of urea, &c., by the skin.[1] 5. Non-elimination of accidental effete matters from the blood, by the kidneys and other emunctories.
II. Introduction of Foreign Matter into the Blood.	1. Inorganic poisons, such as acetate of lead, &c. 2. Organic poisons, such as strychnia, &c. 3. Morbid poisons, such as scarlatina, &c.

While the pregnant woman is not exempt from any of the above causes of toxæmia, she is specially in danger from those comprised under the third and fifth divisions of the first head: viz. non-elimination of the principles of the urine by the kidney; and non-elimination of accidental effete matters from the blood by the kidneys and other emunctories.

---

[1] Landerer has shown that urea is normally excreted by the skin. (Garrod's Lectures in *Lancet*, vol. ii, 1848, p. 653.) It is very important to bear this in mind, for it shows that an increased action of the skin may relieve the kidneys in other ways than merely by getting rid of water. In the report of the case of H. L. D., p. 378, it is noted that at one period there was retention of urine for seventy hours, during which period the patient had a strong urinous smell. The skin was in this instance acting vicariously for the kidney. By the breath also, most probably, the poisonous constituents of urine were exhaled.

While admitting the importance of every emunctory to the puerperal woman, it may still be correctly stated, that all

TOXÆMIC PUERPERAL CONVULSIONS are mainly

1. RENAL, or
2. LOCHIAL:

or they may partake of both, together with other, characters. The chief object of the present paper is to point out the importance of the former: but in doing so, I wish explicitly to mention defective elimination from any organ as a cause of more or less toxæmia: and also to recognise non-toxæmic causes of Puerperal Convulsions.

RENAL PUERPERAL CONVULSIONS. The following diagram shows how pregnancy of itself may cause Renal Convulsions:

PREGNANCY

CAUSES

Increased necessity for Renal Depuration of Blood.

A tumour (gravid uterus) causing renal congestion, which

CAUSES

Non-elimination of poisonous excrement from blood:—

TOXÆMIA,

WHICH CAUSES

Action on Brain, Spinal Marrow, and Medulla Oblongata,

HENCE RESULT

CONVULSIONS.

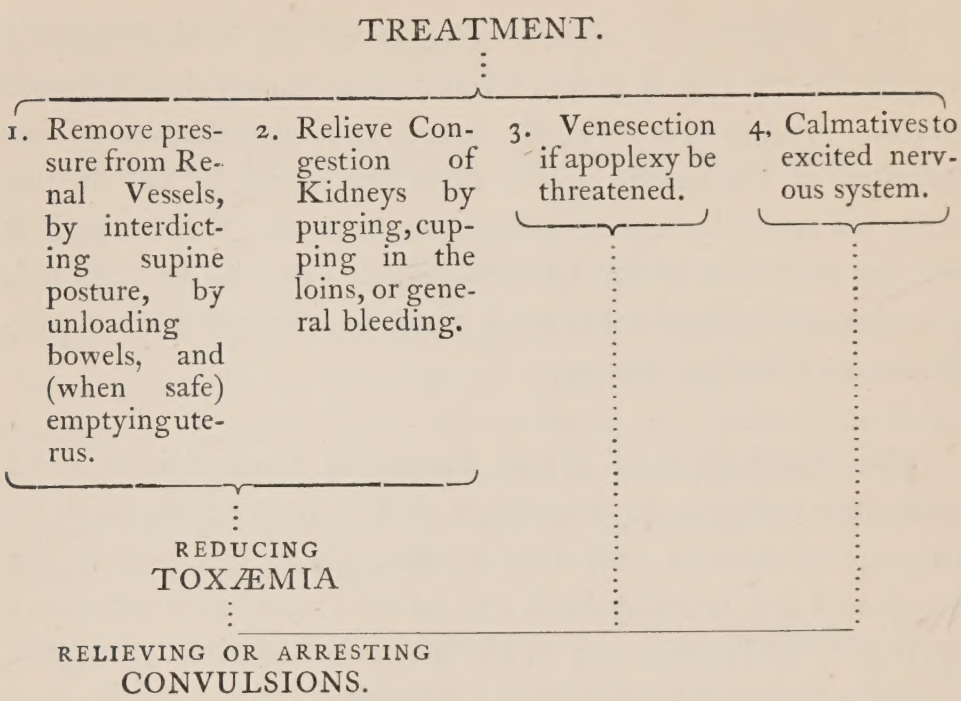
The existence of organic disease of the kidney greatly augments the risk of Renal Convulsions during the Puerperal state. And as was formerly stated, the continuance of the pressure of the gravid uterus after the death of the fœtus, must be specially apt to induce toxæmia; for if the elements for the nutrition of the fœtus suddenly cease to be required, the maternal blood must for a time be charged with superfluous and foreign matter.

The *Prophylaxis* of Renal Puerperal Convulsions must evidently embrace an avoidance of too long continuance in the supine position; an easy corset, giving free play to the lungs and not pressing back the womb; moderate exercise; regularity and sufficiency of the alvine evacuations; and the maintenance of a good state of the skin.

Mental excitement must be avoided; for it might, even with a moderately poisoned state of the blood, be the immediate cause of convulsions.

When toxæmia exists, congestion of the nervous centres is more dangerous than when the superabundant blood is healthy. The conditions and circumstances likely to cause such congestion must therefore be guarded against by every available means.

The *Treatment* of Renal Puerperal Convulsions is a subject on which a great deal might be said; but having already exceeded my limits, the leading intentions only, are, for the present, indicated in the following diagram:


TREATMENT.
1. Remove pressure from Renal Vessels, by interdicting supine posture, by unloading bowels, and (when safe) emptying uterus.
2. Relieve Congestion of Kidneys by purging, cupping in the loins, or general bleeding.
3. Venesection if apoplexy be threatened.
4. Calmatives to excited nervous system.
REDUCING TOXÆMIA
RELIEVING OR ARRESTING CONVULSIONS.

The consideration of Lochial Puerperal Convulsions and of Non-Toxæmic Puerperal Convulsions is deferred to some future occasion.

NOTE.

In the discussion which followed the reading of the preceding paper before the Westminster Medical Society, on 12th May, 1849, the late Dr. TYLER SMITH made some remarks which are thus reported in the *London Journal of Medicine* for 1849, p. 1071 :—

SPEECH OF DR. TYLER SMITH ON PUERPERAL CONVULSIONS.

"Dr. TYLER SMITH expressed his sense of the importance of the views taken by Dr. Cormack. He considered it would be difficult to estimate too highly the influence of impurity of the blood as a direct irritant of the nervous centres in pregnancy. It was necessary to take a comprehensive view of the causes of blood-poisoning dependent on the pressure of the gravid uterus. There was the pressure on the intestinal canal causing constipation : there was the pressure on the emulgent veins causing albuminuria and the retention of urea in the blood : there was the pressure on the hepatic vessels which he had frequently observed to produce pink deposits in the urine ; and lastly there was deficient oxygenation of the blood from pressure upon the thoracic viscera. All these agencies interfered with the proper depuration of the blood in advanced pregnancy, and often produced distressing nervous symptoms. But it was curious to observe that during pregnancy certain vicarious or complementary secretions were set up which tended to preserve the blood in a healthy state. There was the sickness and vomiting of pregnancy, the salivation which sometimes occurred, the increased action of the glands of the axilla and of the skin generally, and the secretion of milk by the mammæ which was sometimes profuse during the latter months, particularly in cases of albuminuria. All these actions tended to compensate, and were no doubt intended to compensate, for the effects

of pressure upon the other organs. The fœtus must also be considered as an excretion, so far as the mother is concerned; and a large quantity of matter which would otherwise have to be eliminated as *effete* from the maternal blood went to form the liquor amnii, the membranes, the bones of the fœtus, the meconium, and the fœtal urine. These points required consideration in our estimate of the state of the blood in gestation. Still, there could be no doubt that in many cases an impure state of this fluid—a true toxæmia—did obtain, and affected the spinal centre—the organ of convulsions—in a centric or direct manner. He believed this to be a predisposing rather than an exciting cause. It was only when the toxæmia was very intense, as in poisoning by carbonic acid, that convulsions depending solely on the state of the blood occurred. If it were otherwise, convulsions would often occur independently of the excitement of parturition. But we generally see that convulsions are actually excited (when the predisposition existed) by some manifest irritation acting in a reflex manner, such as the irritation of the parturient passages during labour, or irritation of the stomach, bladder or intestines. He said this with the fullest recognition of the importance of Dr. Cormack's views, particularly in respect to first pregnancies—but he wished to guard against their too exclusive application."

I was far from urging an "exclusive application" of my views. I chiefly wished to demonstrate the clinical significance of familiar facts which had not been previously interpreted in the same way.

RELATIONS AND DIFFERENCES

BETWEEN

EPILEPSY AND PUERPERAL CONVULSIONS.

REPORT OF SPEECH

Delivered at the Westminster Medical Society on the 15th of December, 1849, at an Adjourned Discussion on Dr. TYLER SMITH'S *paper, read on the 8th of the same month, on "Epilepsy and Puerperal Convulsions:—Some of their Relations and Differences."*

[Reprinted from the *London Journal of Medicine* for 1849, p. 91.]

SPEECH ON RELATIONS OF EPILEPSY AND PUERPERAL CONVULSIONS.

Mr. President,

It is not my intention to enter upon that department of Puerperal Convulsions regarding which I had so recently the honour of addressing the Society—viz. those epileptic seizures which occur in pregnant women from toxæmia, which I described as being chiefly of renal and lochial origin. The Renal Puerperal Convulsions are not necessarily—nor indeed are they generally—connected with organic disease of the kidney. The pressure of the uterine tumour on the renal veins is sufficient to cause congestion and functional disturbance of the kidney, deficient blood-moulting, and consequent toxæmia. The Lochial Puerperal Convulsions depend on toxæmia from suppression of the lochial discharge. Toxæmic convulsions, renal and lochial, are produced by direct impressions on the spinal centre, but the cases so instructively brought before the Society by Dr. Tyler Smith were of reflex or excentric origin. It must be remembered that there are also cases of mixed origin.

The main propositions which the author of the paper has sought to establish are these :—

1. That epileptics are not more liable than others to Puerperal Convulsions ; and

2. That pregnancy has a tendency to ameliorate epilepsy.

But what is Epilepsy ? What are Puerperal Convulsions ?

Epilepsy cannot be rightly used as the name of a disease. If the term have any definite meaning at all, it is when limited in its use to describe a particular form of convulsions. The causes of epilepsy are very various : ovarian irritation is only one of them. Again, Puerperal Convulsions do not by any means always depend upon the same pathological cause ; and each case must stand by itself till investigated and placed in its own group. The term is mischievous if employed with reference to causes or treatment ; and ought to be restricted to its simple meaning, viz. convulsions occurring in puerperal women. They may not be epileptic, but they generally are of that description. I have seen—as have likewise, I venture to say, most of those whom I now address—fits of strictly epileptic character, characterised by coma, clenched teeth, and bitten tongue, arising from the renal disorder of scarlatina ; from toxæmia dependent on organic or functional disease of the kidney or of the liver ; from irritation of the peripheral extremities of the intracranial nerves by osteophytic spicula or by the presence of effused fluid within the cranium ; from cerebral hypertrophy or tubercular deposit ; from irritation of the fifth pair of nerves in dentition ; from irritation of the nerves of the stomach, bladder, uterus, and ovaries. If epilepsy be more common in females than in males, the preponderance must depend upon irritation of the uterus and ovaries or on causes connected with these organs. The greater frequency, however, of epilepsy in the female sex is not an established fact. There is reason to suppose that the severer forms of certain other convulsions to which women are liable have been indiscriminately classed with it. Possibly a rigid diagnosis might nearly if not entirely equalise the number of epileptic seizures in the sexes. From these considerations

it seems to me probable that ovarian irritation is not so frequent a cause of epilepsy as some suppose; and that it is only when the fits depend on that cause that the ovarian repose of pregnancy can be ameliorative. Ovarian repose, however, is by no means a constant condition in pregnant women. If a young unmarried woman had epileptic fits only at her catamenial periods, marriage might be allowed because pregnancy would probably be curative; but it is only when thus stringently limited that the sanitary influence of marriage in epileptics can be admitted. If Dr. Smith's proposition is intended to be a general proposition I must, therefore, dissent from it. The ovarian repose of pregnancy can only be curative when the seizures depend on ovarian excitement. Taking all cases indiscriminately, however, it will probably be found that epilepsy is more rarely met with among pregnant than non-pregnant women, as I stated incidentally in a paper read before this Society.[1]

An interesting case, put on record by La Motte, has been mentioned in this discussion by Dr. John Webster, as bearing on the question of pregnancy in epileptics. The facts, however, are perhaps less anomalous than they appear to be to Dr. Webster. An epileptic woman married. The history of eight successive pregnancies was that when five times gravid with girls she escaped; but that on the three other occasions, when the children were males, she had epileptic fits. The explanation of the case is this:—On each occasion pregnancy proved prophylactic against her old malady—ovarian epilepsy, but this benefit was only manifest when she was gravid of female children, because in her other

1 "From some convulsive attacks, *e. g.* epilepsy, she seems very frequently to be respited in virtue of her pregnancy." *London Journal of Medicine* for 1849, p. 535; [and p. 424 of this volume].

pregnancies, the male fœtus, from the greater bulk of the uterine tumour, caused renal toxæmic convulsions. [In illustration of this point, the statistics of Dr. Collins were referred to at some length.]

An analogy exists between the intra-cranial osteophyte of many non-puerperal epileptics of both sexes, and that remarkable condition of the cranium which obtains during pregnancy, discovered and described about ten years ago by Rokitansky. The Wenzels and others observed long ago that in epileptics of both sexes the calvarium was commonly thickened and had bony spicula projecting inwards from it, and that there was a bony deposit in the dura mater and the pituitary body. Modern physiology points to these spicula as the cause of convulsions, by their irritating the peripheral extremities of the intra-cranial nerves. Now if we have in pregnancy an osseous deposit on the intra-cranial surface, how very probable is it that when the deposit is either in excess, or—in place of being smooth as it generally is on its cerebral surface—is rough and jagged, it may produce epileptic seizures. If so, here we have an analogy between a group of cases of Puerperal and Non-puerperal Convulsions which has not hitherto been suspected.

The subject of cranial osteophytes requires elucidation. By its proper investigation much light may be thrown on those incipent derangements on which certain cases of Epilepsy depend. The osteophyte is an inflammatory product; or at least it is a product which requires a highly fibrinous condition of the blood. In proof of this let me remind you of the condition of the blood in pregnancy, and let me refer to a paper on osteophytes in pleurisy by M. Parise in the *Archives Générales de Médecine* for November

1849. An account of Rokitansky's discovery is given at p. 16 of Fletcher's *Elements of General Pathology*. An account of its confirmation by Ducrest and Moreau will be found in various recent medical journals. The subject has hitherto been looked on as one of mere curiosity, but I think that sooner or later it will be found to have an essential bearing on pathological docrines and medical practice.

The following summary of Rokitansky's observations is given in Fletcher's Elements of Pathology :—

"Professor Rokitansky of Vienna describes a calcareous deposit on the internal surface of the skull as being almost constantly present in the pregnant and puerperal states. This deposit varies from one sixth or one third to one half of a line in thickness. It appears principally on the frontal and parietal bones—especially in the course of the arterial sulci. Sometimes it is found on the base of the skull and on the frontal bones. It does not extend uniformly over the surface of the skull, but is scattered like little islands, there being intervals quite unaffected. It may be considered as an almost invariable appearance in pregnancy, and does not at all indicate any abnormity of that condition. It seems to depend on the state of the uterus during pregnancy ; for it has not been observed either in cases of extra-uterine conception, or in cases of polypi of the uterus. It has been detected as early as the third month of pregnancy. This formation of bone has been observed in three distinct stages of development : *first*, as a yellowish red and gelatinous vascular condition, easily separated from the *tabula vitrea* by the knife ; *second*, as a thin, weak, porous, calcareous layer, attached by a gelatinous exudation to the skull, likewise easily separated by the knife ; *third*, as an osteo-cartilaginous plate attached to the skull by numerous fine vessels

which must be torn through before it can be separated. These three stages of development are generally observed in the same skull. Looking to the observations hitherto made, it would seem that such a deposition takes place at each pregnancy and that the substance thus deposited is not absorbed. Thus, Rokistansky is of opinion, as well from these facts as from numerous observations, that the skull becomes permanently thickened by previous pregnancies. Regarding the connection of the osteophyte with the symptoms that appear in pregnancy, and its relation to that condition of the system in general, we are as yet wholly unacquainted."

M. Moreau states that the osteophyte can always be separated from the skull-cap, and that its separation leaves the vitreous table uninjured and healthy. In forty-two cases he found the first degree of thickness and solidity thirteen times; the second, twenty-one times; and the third, eight times.[1] A recent observer has noticed osteophyte in the

[1] The researches of M. Ducrest (derived from autopsies at the *Maternité* of Paris) appear in the second volume of the *Mémoires de la Société Médicale d'Observation de Paris*, published in 1844. He makes no allusion to the previous researches of Rokitansky unless such is embraced in a passing expression of regret that he has been unable to procure a memoir which a friend informed him had been published on this subject in the German medical journals. His impression of the absence of pathological importance attaching to the intra-cranial osteophytic deposit is thus expressed:—"*Je ne sais quelle importance pathologique pourrait s'attacher plus tard à cette production: actuellement elle me semble plus curieuse qu'importante.*" The following is the summary given by Ducrest of his own "Researches regarding an osseous deposit upon the internal surface of the crania of women who have died in childbed:"

1. An accidental production is found upon the crania of pregnant women, which is at first analogous to cartilage, and afterwards acquires the consistence of bone.

bones of the pelvis as well as of the cranium of pregnant women.

In conclusion let me recapitulate by saying:

1. That greater lucidity and precision would be imparted to clinical descriptions and discussions by using the term epilepsy to designate a *form* of convulsions irrespective of *cause*:

2. That pregnancy can only ameliorate the condition of epileptics when the epilepsy is dependent on ovarian excitement; and

3. That the abnormal development of the intra-cranial osteophytes of pregnancy may be an occasional cause of Puerperal Convulsions.

---

2. The corresponding portions of cranium and dura mater present no special lesion.

3. It is most apt to be found in young women.

4. Its presence does not give rise to any particular symptom.

Rokitansky's inquiries were placed by me before the readers of the *Edinburgh Monthly Medical Journal* in the number for January 1842, in reviewing *Fletcher's Pathology*, edited by Drysdale and Russell, which had then just issued from the press. That was two years before Ducrest published his essay in the *Mémoires de la Société Médicale d'Observation.*

The observations of Moreau referred to in the text appeared in the *Edinburgh Medical Journal* for September 1846, p. 232, as quoted from the *Journal de Chirurgie* for 1845.

V.

GRANULAR DEGENERATION OF THE KIDNEY

AND ITS RELATION TO

SCROFULA:

PRIMARY AND SECONDARY TOXÆMIA.

ILLUSTRATED BY

A CASE IN WHICH DEATH OCCURRED SUDDENLY.

[*From London Journal of Medicine for August*, 1849.]

GRANULAR DEGENERATION OF THE KIDNEY

AND

ITS RELATION TO SCROFULA.

In former papers, I endeavoured to illustrate and enforce the practical importance of two great facts with regard to albuminuria:—1. That, as regards the condition of the kidney, albuminuria is, *per se*, simply a sign of congestion; and 2. That as regards the blood, it is a sure indication of a poisoned condition from non-elimination of excrementitious matter. When we find albumen in the urine, we may reckon with certainty on finding an abnormal amount of urea in the blood. Other poisons also may be present: for example, Dr. Garrod has recently found oxalic acid in the blood of a patient who had albuminuria and toxæmic symptoms during life; and whose kidneys, on dissection, were found to be in an early stage of granular degeneration.[1]

The confused association by authors of various symptoms and morbid appearances under the term "*Bright's disease*,"

---

[1] Garrod (A. B.):—London Journal of Medicine for July, 1849, p. 690.

is much to be regretted especially, as the precise sense in which even some of the most esteemed authors employ it, can seldom be discovered. Some seem to insinuate that albuminous urine is an essential symptom of "Bright's disease:" others doubt this, or assert the contrary. Some consider fatty degeneration as included under the term: and others restrict it to granular degeneration: again, times without number, we find congested or hyperæmic kidneys described as being in the first stage of "Bright's disease;" and Dr. C. J. B. Williams uses the term "congestive degeneration" as synonymous with "Bright's disease."

Dropsy, it may be added, occupies a varying place in the scale of importance with the writers on "Bright's disease." I have repeatedly attended young women with sudden suppression of the menses from exposure to cold, in whom there existed headache, convulsions, anasarca, and albuminous urine. These cases of menstrual toxæmia secondarily complicated with renal toxæmia, would be described by many as instances of acute "Bright's disease." In the face of so much discrepancy and confusion, is it not, therefore, unsatisfactory to use a term which most of the authors who currently employ it, shrink from defining?—a term which, from the vague ideas attached to it, obscures the meaning of authors; unless, like Dr. C. J. B. Williams, they take the precaution to state, that they employ it in a special, or restricted sense. To prevent ambiguity, therefore, I avoid the term "Bright's disease:" and employ the words "albuminuria," and "granular degeneration," simply as expressive of facts, and without any reference to theory.

By *albuminuria*, I mean an albuminous condition of the

urine: by *granular degeneration*, I mean that form of cacoplastic transformation which was found in the case about to be detailed—which was seen in the case of scarlatina formerly described[1] — and which is not an ambiguous, but a very easily recognised change of structure. The albuminuria, *per se*, I look on, *as regards the condition of the kidney, simply as a sign of congestion: as regards the condition of the blood, as a sign of that fluid being surcharged*[2] *with urea, and possibly with other poisonous sanguineous excrements, or abnormal metamorphoses*—of which the oxalic acid, discovered by Dr. Garrod, is a most interesting illustration. Granular degeneration is a process which, if studied in all its stages, can be easily understood. It is caused by the exudation into and around the tubuli uriniferi of a cacoplastic fluid: this fluid, commonly called *inorganizable lymph*, or *cicatrix tissue* (in virtue of its inherent tendency to contract) often causes the tubes to become obliterated: the atrophy of the renal structure often proceeds so far as to render it difficult to be seen, while the adventitious tissue conspicuously usurps its place. The sulci found on the surface of granular kidneys are caused by the contraction of the irregularly deposited cacoplastic lymph. Cirrhosis of the liver originates in the same way. Granular degeneration of the kidney and cirrhosis of the liver result from toxæmia causing a cacoplastic exudation from the blood. In both, the anatomical changes are effected by the contraction of that exudation.

I formerly said:—"There is a great proneness to renal

---

[1] CASE OF H. L. D., p. 378.

[2] Even normal blood contains traces of urea:—GARROD.

congestion in scrofulous children, even when little out of their usual degree of health: this is evidenced by the frequency of albuminuria in them. I have repeatedly found the urine albuminous in the febrile attacks of strumous children: and in a case of tabes mesenterica with dropsy, which I lately cured (by steady mild purging, cod-liver oil, and syrup of the iodide of iron), the urine, at the commencement of the treatment, was intensely coagulable by heat and nitric acid. In the diseases of children of scrofulous taint—especially when the skin is harsh and scaly—the urine ought always to be tested for albumen; and, in a large number of cases it will be found to contain it, but will often cease to do so, on the exhibition of a smart purgative. Dangerous cerebral complications during convalescence may thus be very often averted."[1]

That form of toxæmia to which we give the name of scrofula, is particularly apt to cause granular degeneration of the kidneys. The simple congestion is apt to pass into that more advanced stage of disease, in which there is an exudation of cacoplastic lymph around, and often into, the tubuli uriniferi. Dr. Madden, in his "*Thoughts on Pulmonary Consumption*" — a work of no ordinary merit — in speaking of degeneration of the kidney, says: "The kidneys were found tuberculized only in about one sixth of Louis' cases. In about a fourth of the whole number, they were redder, and of harder consistence than natural. In one case, these organs had undergone the fatty degeneration. Other observers, Dr. Christison among the number, have noticed the occurrence of granular degeneration of the kidney during the progress of phthisis pulmonalis; and it

[1] [See page 394.]

is well known that a scrofulous state of the constitution powerfully predisposes to that urinary disease." (p. 183.)

In assigning to the blood-poisoning of scrofula, a tendency to induce granular degeneration of the kidney, it must be remembered that it is not the only blood-disease in which this tendency exists. As already shown, in the case of L. H. D., formerly described (p. 378), the poison of scarlatina seemed to originate granular degeneration of the kidney. It must also be remembered, that an accidental cause may be the first in the morbid series. For example, drinking rum or whiskey, and exposure to cold, may induce renal congestion, and the consequence of this may be impaired function of the kidney. The blood then becomes imperfectly purified from its excrement, and toxæmic phenomena ensue. As the consequence of congestion—and simultaneously with the constitutional symptoms induced by it—a structural change may take place in the kidney, which except in its first stage can hardly be cured or arrested, though very much may be done to palliate symptoms and prolong life.

The following case shows how the toxæmia may not only induce the granular disease, but, when induced, how that structural change of the kidney may itself become a source of additional toxæmia of another kind. It shows the original hereditary poison inducing impaired nutrition and a specific change in the kidney: and it shows this change in the kidney inducing cerebral and spinal phenomena such as ordinarily arise from non-elimination of effete matter from the blood. It is, therefore, a case in which one group of symptoms were caused by the primary and another by the secondary toxæmia: and in which, the

structural change in the kidney causing the secondary toxæmia, was the result of the primary toxæmia.

Case H. C. G., aged 12 years.

On the 21st September, 1846, I was hastily summoned to visit a young gentleman near Putney, who had two hours previously appeared to be in his usual health, though apparently dying when the messenger left him—in twenty minutes from which time I arrived: the patient was then dead. The mouth was distorted, and the lips quivered convulsively: but there was neither breath nor pulse. I was told that on the previous day (Sunday) he had attended church, and that on the following morning he had appeared to be in his usual state of health. Between eight and nine o'clock, when engaged with his tutor, he was seized with vomiting. Under the impression that the illness was a "bilious attack," he was put to rest on a sofa, and ordered a dose of four grains of ipecacuanha—the emetic effects of that medicine having relieved him on former occasions when he had seemed to be similarly affected. He was not, at first, worse than he had often been before; and it was not till convulsions supervened, that alarm was taken. The convulsions were ushered in by a drowsy condition, which was ascribed to exhaustion from the vomiting. The illness terminated in death at 11 A.M., within three hours from the first symptoms of being out of ordinary health. I never saw the patient in life. Mr. Cooper, of Brentford, his ordinary medical attendant, informed me, that though always weak and ailing a little, yet he had never attended him for any definite or severe symptoms.

A coroner's inquest was summoned, and in accordance with the evidence adduced, a verdict was returned to the effect that the deceased had died from natural causes. The coroner did not feel that he was justified in putting the county to the expense of an anatomical examination; but the connexions of the deceased, wishing to ascertain the cause of death, requested Mr. Cooper and me to dissect the body. This we did with great care. The following is a copy of our report of the autopsy delivered to the relatives.

Appearances found on examining the body of H. C. G., seventy-two hours after death, on September 24th, 1846.

External appearance.—The surface of the body presented the following marks of putrefaction:—the face and neck were enormously swollen; the hair was scarcely adherent to the scalp; and the integument was of a mixed green and purple colour, of varied intensity, from the head to the hips; below this, there were large livid patches, mixed with portions exhibiting the ordinary appearances of a recently dead body. From the nose was issuing profusely a fœtid and frothy discharge, which seemed to consist of decomposed blood and *pus*—possibly *mucus*. The cavities of the chest and abdomen were greatly distended with gas.

Head.—The head was observed to be large and unsymmetrical. The encephalon generally was soft; the firmest parts were the optic thalami and the pons Varolii. The vessels were greatly distended with blood—part of this distension, however, being evidently caused by the gases evolved from the contained decomposing blood. The lateral ventricles were distended to more than twice their natural volume by serous fluid. Within the sac of the arachnoid, there was a large quantity of fluid. The brain

was carefully searched for an abscess, but no trace of pus, nor any abnormal cavity, could be found. The petrous portion of the right temporal bone, when struck with the back of the knife, yielded a hollow sound. This was especially noticed, by contrasting it with the sound elicited on striking, in the same way, the corresponding part on the left side. The petrous portion of the right temporal bone was also obviously larger than its fellow. The saw cut through it with unnatural ease and in some parts it yielded to the knife. Most of the bony ridges on the internal surface of the cranium were unusually sharp, and in some parts of the anterior of the base, their spiculated feeling was very striking.

Chest.—After two ligatures had been applied around the great vessels, the lungs and heart were removed. The lungs filled the whole cavity of the chest, and were in no part adherent to the parietes. The left pulmonary pleura presented posteriorly some loosely adherent flocculi of lymph. Both lungs were gorged with blood, and when cut into, had a solid aspect and feel. In one or two parts a crackling sound was elicited by pressure, depending obviously on the gaseous products of the decomposed blood. The heart was quite empty, of a pale and flaccid consistence, and offered very little resistance when torn. The cavities of both pleuræ contained bloody serum. The quantity we estimated at above a pint.

Abdomen.—The stomach was empty. The state of the stomach and intestines appeared to be natural. The liver was twice the normal size: it was soft and friable throughout; the left lobe was pale and waxy; the right seemed to be pretty much in the same condition, but was dark in colour, from sanguineous engorgement. The gall-bladder

contained a considerable quantity of apparently healthy bile, which by moderate pressure was made to flow into the duodenum. The left kidney had a hard, rough, and granular texture, which, when cut into, presented a dirty white appearance. The examination of the right kidney was accidentally omitted.

The Conclusions to be drawn from the history and post-mortem appearances are :—

1. The granular degeneration of the kidney was the result of the scrofula-poison in the blood.

2. The granular degeneration of the kidney impeded normal sanguineous depuration by that organ, and thereby occasioned secondary toxæmia from accumulation of excrementitious matter within the blood.

3. A sudden increase of this secondary toxæmia was the proximate cause of death.

4. The cerebral disease—indicated by symptoms during life and by lesions found on dissection—was caused partly by the primary, *i. e.*, the scrofulous toxæmia, and partly by the secondary, *i. e.*, the renal toxæmia.

VI.

INFANTILE REMITTENT FEVER:

CASE TERMINATING IN HYDROCEPHALUS:

DEATH PRECEDED BY

CONVULSIONS.

KIDNEYS CONGESTED: UREA AND URIC ACID IN THE BLOOD.

[*From London Journal of Medicine for October*, 1849.]

INFANTILE REMITTENT FEVER:

DEATH PRECEDED BY CONVULSIONS: KIDNEYS CONGESTED: UREA AND URIC ACID IN THE BLOOD.

The relation which renal toxæmia bears to some of the symptoms of Acute Hydrocephalus, and in particular to the coma and convulsions which so frequently usher in death, is often very intimate and of much practical importance. By a just appreciation of it, I believe that I have often been led to adopt, and persevere in, treatment which has proved successful in the most discouraging circumstances. On the present occasion, however, it is not proposed to detail cases of recovery.

Case of E. A., aged 18 months.

The subject of the following history was, a few days before her decease, as robust, joyous, and beautiful an infant as could delight the eye. From my attendance at her birth till the seizure with her fatal illness, she was much under

my notice when visiting other members of the family ; but, only once was it necessary for me to prescribe for her, and, then, the malady was so transient and trifling as to have left no trace on my memory. My only record is the prescription for three aperient powders, entered in my professional diary. It may, therefore, be truly said that her last was her first and only illness. Her teeth had, as the mother remarked, been found by her accidentally and with surprise, as their coming had occasioned no feverish symptoms ; whereas the other members of her numerous family had all suffered severely during dentition. The child was always plump and firm in flesh ; and she walked and spoke much better than is usual with infants of her age.

On the 14th and 15th June, 1849, she was observed, both by the mother and nurse to be fretful ; and on the latter day she was drowsy. These symptoms were ascribed to the constipated state of the bowels ; and to remedy that condition, the mother gave a dose of rhubarb and magnesia. It produced three dark-coloured, offensive, fluid stools. After these motions, the infant seemed decidedly better ; she took some food with avidity, played for a short time with her brothers and sisters, and then fell asleep. The sleep continued with hardly even momentary awaking, from 4 P.M. on the 15th, to 9 A.M. on the 16th, when she woke, and though in a languid condition, seemed contented and cheerful. At this time, when lying on her mother's knee, after passing a small quantity of high-coloured urine and taking some food, she was observed to partially turn up her eyes and clench the fists ; and about 11 A.M. the eyes suddenly turned quite upwards, the head and neck became bent rigidly backwards, and the whole frame was slightly

convulsed. This seizure, which did not last many minutes, was the circumstance which first excited alarm and caused me to be summoned.

I first saw the little patient half an hour after noon. She was then in a deep and tranquil sleep. The face was pale. The surface was rather cold, especially the feet. The pulse was 120. On being awakened, she became flushed and fretful. When I was examining the abdomen and scarifying the gums, she struggled and cried very much, as an infant of her age might do when unexpectedly roused; she showed no signs of stupor or of any tendency to convulsions. The abdomen was not distended. The mouth was rather hot, and the gums over the first and second molars, on both sides, were somewhat, though not greatly, swollen. The tongue was rather dry, and very foul. It is important to mention, that the mother ascribed the seizure to exposure, when heated, to a draught of cold air from the river: and the continuance of the illness to the close and sultry weather. The condition of the atmosphere was such as to account for some part of the soporose tendency, as at that time many—healthy, as well as sick—were suffering from lassitude and drowsiness. After giving a guarded prognosis, scarifying the gums freely so as to cause them to bleed a good deal, I administered, before leaving the house, two grains of hydrargyrum c. cretâ with one of the resin of scammony. A sinapism was likewise applied over the loins; and I directed that the lower extremities should be fomented with mustard-water. I returned at 4 P.M. The surface was warmer. In other respects, the general character of the symptoms was the same. There had been neither urinary nor alvine evacuations. The sleep had been heavy and uninterrupted. An

enema, containing one drachm of turpentine, was therefore prescribed.

At 9 P.M. I found that great improvement had taken place. The mother assured me, that, after the action of the enema, which produced an abundant evacuation of hardened fæces, the infant appeared to be quite herself again: she was inclined to play, and took some sweetened milk and water with eagerness and satisfaction. A small quantity of urine had been passed unconsciously before the enema was given; and I was thus disappointed in obtaining any for examination, which is to be regretted, as, in this early congestive stage, it would have been interesting to test it for albumen. I procured, however, the napkin, which exhibited a brownish stain, the margin of the stain being most deeply tinged. Litmus paper applied to the damp napkin was reddened. The quantity of urine voided on the napkin was small. When the enema operated, an additional quantity was passed; but from being mingled with the fæculent discharge, it could not be examined. The pulse was not more rapid, but it was much stronger, the skin was warmer, and there was a very slight flush in the countenance. The following is a summary of the directions which I gave for managing the case, till my return in the morning:—

If the head became hot, an evaporating lotion was to be assiduously used; the lower extremities were to be kept wrapt up in blankets wrung out of hot water; and the general covering was to be light—a single sheet, so long as the surface was warm; every four hours six drops of the spiritus ætheris nitrici were to be given; and early in the morning, a purgative powder similar to that administered at my first visit was to be given.

17*th June*, 10 A.M.—After I left last night, the infant got rapidly into a state of burning fever, which, after continuing for an hour, subsided, a slight and transient moisture appearing at the same time on the head, face, and chest. A small, offensive, and tar-like motion was passed at 9 A.M., the powder having been taken at 6 o'clock. Excepting a small quantity passed with the motion, no urine had been voided since the operation of the enema. An aperient powder was given.

In the evening I learned that a good deal of urine had been passed unconsciously, and likewise two offensive stools. I was told that about 8 P.M. the surface became cold, and that some slight convulsive movements were then observed during sleep, after which a burning fever set in. Out of this state she was passing when I made my visit at 10 P.M. She was then sleeping softly, and perspiring profusely: the breathing was natural, and the pulse was 98. The mother reported that there had been less stupor, and that the child had followed with her eyes all that was done in the room.

18*th June*.—During this day, a good deal of urine passed unconsciously. The child slept, with only slight interruptions, all day. The skin was moist, the breathing easy, and the expression of countenance natural. A small quantity of urine was obtained for examination; it was high-coloured and acid. When heated, the supernatant portion became clearer after depositing a white precipitate: on adding nitric acid and continuing the heat, the greater part of this precipitate was dissolved. The quantity was too small to enable me to determine the specific gravity.

19*th June*.—If there be any change to-day, it is for the better. The treatment is to be continued.

20*th June*, 10 A.M.—A change, decidedly for the worse, came on during the night. For the last twelve hours there has been profound coma, and neither alvine nor renal evacuation. The muscles of the face have been a good deal convulsed on several occasions, the fists clenched, the eyes open and upturned, and once there has been an attack of opisthotonos similar to that which occurred before my first visit. I immediately caused to be administered a turpentine enema; and I again scarified the gums.

21*st June*.—From 9 to 11 this morning there seemed to be some slight improvement in the countenance. There had been very little, if any, urine passed. In the afternoon the stupor became very profound. A blister was applied to the head, sinapisms to the loins, a purgative enema administered, and a mixture, containing gamboge, was given at intervals. The blister discharged freely. There was one abundant liquid stool from the gamboge. Again, the result of the treatment seemed hopeful.

22*nd June*.—There has been some improvement to-day. The child on several occasions recognised her mother, brothers and sisters; but there was no diminution of the comatose state on the three occasions on which I visited her. Dr. Sibson saw the child at 9 P.M., together with me, when the condition was certainly very different from what had hitherto existed: this, perhaps, might be owing to the circumstance of the infant having taken too much strong beef-tea during the hours when she had partial consciousness. The countenance was flushed; the head was burning hot; and the pulse was full, hard, and rapid. These symptoms were speedily abated by leeches to the temples, and the application of ice, for some hours, to the head.

23rd June.—The state to-day has been very similar to that of yesterday, including the vascular excitement in the evening. The fever was not, however, of so long duration, and passed off in perspiration—the consequence, apparently, of hot fomentations to the limbs, and the application of cold to the head. After the perspiration, the child seemed very weak, and two doses (of ten drops each) of brandy were administered.

24th and 25th June.—There has been much more prostration to-day, and a persistency of coma. No urine has been voided, excepting towards the afternoon, when a little was seen to flow, perhaps about three or four drachms, which left a stain upon the towel like that of bloody serum. A scanty stool was passed during the night. In the afternoon, about the same hour as on the preceding days, vascular excitement set in strongly. When I saw the child about 10 p.m., the pupils were contracted, the veins in the neck and head turgid, and, every ten minutes, there occurred opisthotonic convulsions, the fists being firmly clenched at the same time. The clenching of the fists was the first indication of the coming opisthotonos. Sometimes the face was distorted, but not always. At midnight I returned, and found matters had been going on from bad to worse; the convulsions were much stronger, almost without intermission, and were accompanied by incessant piercing shrieks. When I left between 12 and 1, I did not suppose that life could have lingered till 5 next morning—the hour at which the infant expired. The convulsions and the shrieks continued up to the moment of death. The mother assured me, that, upon some occasions the violence of the spasms was such as to bring the head and heels almost into contact.

When I saw the body early in the morning, some hours

after death, the surface was purple, and the features much distorted.

AUTOPSY, *twenty-six hours after death, made on the 25th June, 1849, between half-past 6 to 8 a.m., by me and Dr. Alexander Henry.*

External appearance.—The anasarcous appearance was evident, though much less marked than during life. Notwithstanding the heat of the weather, there was no sign of decomposition having commenced. There was slight cadaveric rigidity.

Head.—The head was well formed. On removing the scalp, a small portion of the anterior fontanelle was observed to be unossified, and through the membrane in that situation, as well as through the bones themselves, could be seen the great vascular congestion existing below them. In dividing the skull, the bone bled freely; and on removing the upper segment, the dura mater presented a rigid appearance, from the prominence of the distended blood-vessels. The brain, being very soft, was cautiously sliced from above downwards to the roof of the lateral ventricles. The congestion between the hemispheres was very great, and the blood in the vessels of the substance of the brain was unusually abundant and fluid. The right ventricle was enormously distended with clear serous fluid: three and a half drachms were removed and measured, but an additional quantity was lost, from the softness of the brain causing a laceration by which it escaped. The left ventricle also contained an abnormal amount of fluid. The choroid plexus on each side was much gorged. The fourth and fifth ventricles were distended with fluid. The cerebellum was firmer than the cerebrum; and the pons Varolii and medulla

oblongata were much firmer than the cerebellum. The vessels of these parts were congested. The amount of sub-arachnoid effusion was inconsiderable, as compared with that in the ventricles. No clot or extravasation of blood was seen, though carefully looked for. The fluid removed from the ventricle was examined by Dr. A. B. Garrod; he found it to have a specific gravity of 1007·5, and a slightly alkaline reaction.

Chest.—There was no effusion into the cavities of the pleuræ or pericardium. The viscera of the chest were natural in position and structure. The blood in the heart and vena cava was fluid.

Abdomen.—There was no effusion into the peritoneal cavity. The intestines were moderately distended with flatus. The liver was not congested; the gall-bladder contained a moderate quantity of black, thick bile. The spleen was, perhaps, a little more bulky than natural, but it was not softer than usual. Both kidneys were much enlarged; the left was the largest. When cut into, the blood trickled from them; they had a soft feel, and were so pulpy, that, in the hot state of the weather, and with other urgent duties to attend to, it was not possible to reserve them for microscopical examination. Their condition, however, was that of enormous hyperæmia, with, no doubt, ruptured Malphigian tufts. There was no urine in the bladder.

The Blood.—Dr. A. B. Garrod very kindly made a careful chemical examination of fluid blood, chiefly removed from the heart, vena cava, and pulmonary artery, with a little also from the sinuses of the dura mater. The whole quantity examined was so small, that he could only procure from it 185 grains of solid matter. He says: "urea was found in it, in greater abundance than in healthy blood. It

also contained a larger quantity of uric acid than healthy blood."

The case now detailed is interesting from the apparent absence, in its first stage, of inflammatory symptoms, from the well-marked remittent character maintained throughout by the disease, from the albuminous condition of the urine (as in intermittent fever), and from the superabundance of urea and uric acid found in the blood by one whose accuracy in, and familiarity with, such researches are well known.

Is acute Hydrocephalus always an inflammatory affection? I confess that my own experience has long inclined me to this opinion. That the treatment, which this view of the pathology of the disease suggests, is safe in the majority of cases, there can be no question. Leeching, general blood-letting, and active purging, are all most obviously efficient for good in a large number of cases. Still, in the case now narrated, there did not seem to be any propriety in regarding the disease as inflammatory; and, perhaps, in numerous instances in which blood-letting proves useful, the principal effect of its beneficial operation is the relief it affords to congestion, just as it proves useful in certain forms and stages of remittent and intermittent fever. The recognition of this principle, if correct, would often be of great service in preventing mere empirical depletion, in regulating the amount of blood which ought to be taken, and in pointing out the exact periods at which it ought to be drawn. In place, then, of answering the questions proposed, by an unqualified affirmative, it would apparently be more correct in theory, and more useful in practice, to hold that acute Hydrocephalus, *i. e.*, effusion into the arachnoid sac and

ventricles, following in a few days, or it may be in a few hours, the first recognisable deviation from health, is a form of dropsy, which may supervene upon the congestive stage of a remittent or intermittent fever with or without an intermediate inflammatory stage. The irritation of teething, also, intestinal worms, and various diseases of the abdominal viscera, occasion, in many children, severe and alarming head symptoms depending on cerebral congestion and very prone to terminate in effusion. In each case, the special disorder must be the key to the treatment. However imperative active measures may be, to avert or remove cerebral mischief, it is mere empiricism to treat every case as if the head were the primary or principal seat of the disorder. For example, it would often be good practice to combine sulphate of quinine with calomel or other medicines given to act on the chylopoietic viscera.

Early change of air might have been of material benefit in the case detailed. In two cases, almost identical in their symptoms, and exactly coincident as to local and atmospheric circumstances, I have, within the last few weeks, had the happiness to witness recovery. In both cases, the treatment embraced the steady exhibition of quinine ; and, in one instance, together with this medication, the patient had the benefit of change of air.

For some months past, the majority of cases of all diseases in this neighbourhood have, so far as my experience goes, presented a well-marked tendency to assume the remittent and intermittent types. This has been particularly obvious in the serous diarrhœa, or cholerine, so prevalent and so fatal, as well as in such fully-developed cases of true cholera as did not terminate too speedily to prevent the

whole group of symptoms from being manifested. Being anxious to ascertain whether the same type had been recognised by others, I applied for information to Mr. Whiteman, my neighbour, who, as medical attendant on the poor of this parish, had had, I knew, in addition to his private practice, a large experience in cholerine and cholera, within the last few months. He entirely corroborated what I have now stated, as to these affections having presented an unmistakable relation in the character and sequence of their phenomena to intermittent fever. It will be interesting to learn, whether the same thing has been observed generally throughout the country; or whether it has been more manifest in particular localities. It has certainly been equally obvious in some cases which I have had on the other side of the river, in and near Fulham.

Essex House, Putney;
September, 1849.

VII.

CASE

OF

LABOUR COMPLICATED WITH CAULIFLOWER EXCRESCENCE OF THE UTERUS

WITH REMARKS ON THE

NATURE AND TREATMENT OF THAT DISEASE.

[*Read before the Medical Society of London, 30th November, 1850, and published in the London Journal of Medicine for March, 1851.*]

LABOUR

COMPLICATED WITH CAULIFLOWER EXCRESCENCE OF THE UTERUS:

NATURE AND TREATMENT OF THAT DISEASE.

THE case which I am about to bring under the notice of the London Medical Society is instructive, when viewed in connexion with other recorded cases of the same disease. It calls attention to the use of certain *palliative medicines*; and it likewise brings under our notice *excision* as a means of cure, or of prolonging life when the malady cannot be extirpated. It is also a remarkable case, from the circumstance of both the patient and her husband having been ignorant of the existence of disease till I discovered it when called in at the end of the natural term of gestation.

CASE.—*Disease not discovered till the patient was in labour; excision two months after delivery; death five months and a half after the operation; post-mortem examination.*

During September, 1847, I was requested by Mrs. G., aged 30, married for five years, and the mother of one child,

to attend her in her approaching confinement, which she said she expected about the end of November. She had had two miscarriages. She said that her general health was good, and that since the third month of her pregnancy she had enjoyed better health than since the birth of her child. Some months before she became in the family way, she had suffered greatly from menorrhagia; and being then in Edinburgh, she went to consult Professor Simpson. He was not at home, but she saw his assistant, who prescribed, and requested her to return on a future day to see the Professor. Finding great benefit from the medicine ordered (which, seems to have been gallic acid) she did not go back; and had never since asked, nor, as she supposed, required medical advice. She said that about once a month she had had, during her pregnancy, a slight coloured discharge for a day or two, and likewise some colourless discharge; but that as this had also occurred during her first pregnancy, and as it did not seem to weaken her, she was not uneasy about it.

From the day in September when she asked me to attend her in her confinement till I was actually called to her in labour on the 28th of November, she never made the slightest complaint to me, though I saw her frequently. During that period, she took much exercise; and she did so not only with impunity, but with advantage to her general health.

About 5 P.M. on the 28th of November, I was summoned to attend immediately upon Mr. G., who I was informed was then in labour. Upon my arrival, in half an hour afterwards, at her bedside, I found, that she was not in pain; and, according to her own statement, and that of the nurse, she had hardly experienced any symptoms which resembled

approaching parturition, except that she had discharged, *per vaginam*, a watery fluid in such abundance as to soak through the bed. I was told that the membranes had been ruptured, and that the waters were still coming in large gushes. As I entered, the discharge was observed for the first time to have given a sanguineous stain to the linen: and on proceeding to make an examination, I found her bathed in blood. She suddenly became very faint; and from the blanching of the countenance and the ebbing pulse it was evident that the discharge from the vagina was telling rapidly and dangerously upon the vital powers. Upon introducing the finger, I felt—surrounded by soft and imperfect clots—an irregular, tolerably firm, and somewhat elastic mass, obstructing the upper part of the vagina. From the sensation which this mass communicated, and from the alarming way in which blood was flowing, I at first suspected that I had to deal with a case of placenta prævia. A moment, however, sufficed to remove this erroneous impression; for I found that I was easily able to carry my finger round the base of the tumour, and to make out that it did not proceed from the interior of the uterus, but was attached around its orifice externally, and chiefly to the anterior lip. At this time, the os uteri was just sufficiently patulous to admit the point of the forefinger.

My first proceeding was to inject a strong solution of alum into the vagina; taking care that it reached and thoroughly bathed the os and cervix uteri. I next introduced a compress saturated with the same lotion, and then firmly plugged the vagina. I also had an opiate enema administered by the rectum. The patient soon fell asleep, and in two hours awoke refreshed, though very weak. During her sleep, I learned from the husband that the colourless

discharge which she had before spoken of to me was watery and limpid, and not like mucus. This was afterwards confirmed by herself; and before leaving the house, I announced to both parties the nature of the case:—That there was a growth from the uterus, from which the water and blood had poured; that the membranes were still unruptured; and that labour had hardly commenced.

At six in the morning of the 29th, I was sent for in consequence of the pains having become sharp and regular. There had been no more loss of blood, and the pulse and general condition of the patient had so much improved, that I resolved to withdraw the plug (which was causing much discomfort) and satisfy myself as to the state of matters by making a digital examination.

The plug was found to be saturated with a reddened fluid, and to yield a repulsive odour, much resembling that of very fœtid lochial discharge. The tumour, which had before been large and turgid, could now be best compared to a superficial roughness, amid which were some more decided elevations. The os and cervix were rather tender to the touch; and so they had been at the first examination, though no sensation was communicated to the patient by freely manipulating the tumour. For the next eleven hours nothing remarkable occurred. There was a great drain from the seat of the disease of a fluid, which may be well compared to dirty and slightly reddened water. This, when excessive, was generally arrested or moderated, by injecting alum and using the plug. At 5 P.M., the labour pains became strong and frequent, but the os uteri did not dilate in proportion, and at this time it felt rigid, and on one side angular. I now introduced within the os a piece of dry sponge smeared with oil. From this time the pains became

almost constant, and the dilatation of the os was evidently considerable at 7 o'clock. For some hours there had been little loss of blood; and till 8 P.M. I did not think that any further interference was likely to be required. At this time, however, there was a sudden accession of hæmorrhage; and as the os uteri was now pretty well dilated, I punctured the membranes, and administered three successive doses of ergot of rye. A living child was born at 9 o'clock; the placenta soon followed; and the uterus contracted naturally. After taking some tea with toast and a little brandy, the patient fell asleep; and I then left her with a pretty good pulse.

On the following morning, I was told that she had passed an excellent night, without requiring to take the opiate draught which I had conditionally ordered. I found the tumour had regained very much of the same character as when I first explored it, though it was much less bulky. It was still destitute of sensation, but around its base, touching indicated a good deal of tenderness. Everything went on well till the fourteenth day—the strength increasing, and the ability to nurse being good and improving. The lochial discharge—or at least a moderate sanguineous discharge—continued. In consequence of local pain, I was asked to examine the womb. I did so, and found a state of matters very similar to what I had found at my last examination. I took occasion, however, to explain the nature of the case, and to hint at the necessity which might arise for operative interference. She, however, could not be persuaded, that if she had so long had the disease without knowing it, it could now be necessary to regard it in so serious a light.

With difficulty she consented to a consultation. About the twentieth day after delivery, Dr. Henry Bennet saw

her along with me; and in consequence of the pain which she felt in the base of the tumour, and the return on two occasions of alarming hæmorrhage, we both agreed that without much longer delay it would be proper to remove the diseased mass, with the portion of the uterus to which it was attached. She objected, however; and thus much precious time was lost, both as regarded relief from pain and chance of cure.

Some time afterwards, when the disease had considerably advanced, when no sleep could be had at night without an opiate, and when there was a good deal of tenderness in the parts, she was seen by Professor Fergusson, who discountenanced operative interference, from his conviction that it would not accomplish a radical cure. He did not, however, absolutely negative the propriety of the proceeding, should the sufferings of the patient so increase as to make her desire relief by the knife or ligature. The debility and timidity of the patient increased; and thus more precious time was lost. I may here state, that during the first part of this delay great abatement of the discharge was obtained by the internal administration of gallic acid; and that pain was restrained within the bounds of endurance by opiates. At last, it was only by an enormous consumption of morphia that life was made endurable. The attacks of hæmorrhage were frequent and frightful; and the whole of the cervix uteri and vagina was excoriated by the foul discharge with which they were constantly bathed.

On the 6th of February 1848, at the urgent entreaty of the sufferer, Mr. Fergusson (now Sir William Fergusson, Baronet) removed the diseased mass by the knife, having first had her put under the full influence of chloroform, and had the womb drawn down within reach. The excrescence

was entirely removed, but the incision (though a large portion of the cervix was cut away) was necessarily through indurated structure. The portion of the uterus which was removed presented hardly any indication of the spongy growth to which it had given a basement. Indeed, the naked eye could only detect a flabby granular surface; and the touch could only recognize hardness of tissue and roughness of surface. A gentleman who promised to make a microscopic examination of the excised parts unfortunately forgot to do so.

Severe sickness came on some hours after the operation, probably dependent upon the chloroform, which had been administered before and during the operation to cause anæsthesia. After this, she improved rapidly in her general health, notwithstanding several pretty severe attacks of hæmorrhage. The dreadful pain had now ceased to torment her; the appetite was good; and she was gaining flesh and strength. In a month after the operation she was able to walk out a little. About this time, however, she began to complain of shooting pains in the back and pelvic region, and occasionally at night was obliged to have recourse to an opiate to obtain sleep. The incised surface till this time had presented a smooth and healthy surface, both to the finger and to the eye; but now, upon examining with the speculum, it was found to have assumed a granular surface. This condition rapidly increased; and within two months from the operation, there was a fresh excrescence, sometimes as large as a pigeon's egg, and at other times not bigger than a hazel nut. From this growth a profuse watery discharge flowed at intervals; and as time advanced, she had every two or three days frightful hæmorrhage, which, on several occasions, very nearly proved fatal. The pain was

constant and of the most agonizing character. Besides the free application of belladonna to the sacrum, she took for several weeks before her death so much as three ounces a day of the Edinburgh solution of the hydrochlorate of morphia, in clysters, and by the mouth. Ulceration went on rapidly; and the atmosphere of the room in which she lay was intolerably offensive from the discharge, though deodorizing agents were freely used.

At last this poor sufferer was released from life on the 17th July, the immediate cause of death being a fit of exhaustion, induced by an attack of hæmorrhage similar to those already referred to. For the last three weeks of her existence these attacks had been so sudden, so violent, and so frequent, that it had been found necessary to keep the vagina firmly plugged. The parts were bathed with an infusion of opium, once every six hours, and a clean plug was introduced at least once every twenty-four hours, and generally at shorter intervals.

Death occurred about seven months and a half after delivery; and rather more than five months after the operation.

Examination of the body forty-eight hours after death.—This I made with the kind assistance of Dr. G. T. Gream and Mr. A. B. Barnes. The emaciation and anæmic condition of the body were excessive. The arch of the pubes was removed, and the abdomen laid open, so that the uterus and adjacent parts might in the first instance be examined without displacing or handling them. The cervix uteri was absent. The vaginal end of what remained of the uterus was ulcerated, as was likewise the whole of the upper part of the vagina. When carefully looked at, the surface

of the uterus which had been incised was found to have on it the same flabby granulations or vascular excrescences, which were noticed in the portion removed by Mr. Fergusson. They were rather more florid. The surface on which these growths were implanted was of a hard and almost cartilaginous consistence. The body of the uterus was harder, and rather larger than natural. Its peritoneal surface was dark, as if deeply stained with a pigment. The upper part of the vagina was ulcerated, and was easily torn. The urethra, the bladder, the ovaries, and the rectum, were free from disease.

Remarks.

It is *possible* that if the operation had been performed earlier in this case, the result might have been somewhat better. Even as it was, life was prolonged, and a brief respite from suffering was likewise obtained. The effect of the gallic acid in restraining the menorrhagia at an early stage of the disease is an interesting fact, confirming what every one in the habit of using this medicine must have observed—that it rarely, if ever, fails to manifest its anti-hæmorrhagic virtues, even under circumstances apparently the most different. It is a medicine which we may almost give *empirically* as a styptic, so wide is the range of its application : in menorrhagia, probably, no medicine is equal to it. Gallic acid, however, though useful in restraining the hæmorrhage depending upon cauliflower excrescence of the uterus, is not a remedy for that disease, which—so far as our knowledge at present extends—cannot be cured by medicines or hygienical treatment.

If cauliflower excrescence of the uterus cannot be permanently eradicated by the knife or by the ligature, can surgical interference render it less painful and less rapid in its course? This is a practical question which demands an answer.

Unfortunately, cauliflower excrescence of the uterus is not the seat of pain, except in its later stages; and therefore it rarely comes under the notice of the medical adviser at that early period when complete removal is possible. The case which I have detailed might have had a very different issue, if the diseased mass and the surface from which it sprang had been excised twelve months earlier—at a time when the only symptom was the limpid discharge. Had the operation been tried with all convenient speed after delivery, the miserable existence which the patient had after her confinement might have been ascribed by some to the use of the knife. The case must now, however, be held as proving with all others recorded, that such tumours, though they may long remain pretty stationary, at last inevitably terminate fatally. This fact is of itself a strong argument in favour of resorting to operative interference as early as possible, for it is then, if at all, that the morbid mass can be eradicated. In Mrs. G.'s case, when the operation was performed, a cure was not expected; and the knife was used only with the hope of accomplishing—what was attained—a respite from impending death.

On the 3rd of December, 1845, Professor Simpson read before the Medico-Chirurgical Society of Edinburgh a communication upon excision of the cervix uteri, in which he stated that out of eight cases in which he had performed this operation, in three the amputated vaginal portion of the cervix was the seat of what he terms "carcinomatous

disease." In one of the cases, one of cauliflower excrescence, the patient had remained perfectly well from the date of the operation in 1840, and in the interval had brought forth and nursed three healthy children. In a second patient, whose health and strength were greatly reduced, the excised part presented a tumour having all the microscopic and other characters of Müller's *carcinoma fasciculatum*. When Professor Simpson read his paper to the Society, two years had elapsed since the operation, and the patient was then continuing to enjoy the best of health. In the third case, the diseased surface presented a well-marked specimen of Müller's *carcinoma reticulare*. The patient remained well for eight months, but the disease then recurred, and proved fatal fourteen months after the operation. Professor Simpson's published experience is therefore an encouragement to operate.

A powerful argument in favour of the propriety and rationality of attempting a cure by operation is to be found in the able researches of Dr. Andrew Anderson, of Glasgow.[1] He has shown that cauliflower excrescence is "a disease which cannot spread by simple germs, as ordinary cancer is supposed to do; for, in order to its growth, a regularly formed membrane is necessary, and not merely active cells; and this consideration," adds Dr. Andrew Anderson, "renders more probable the success of the operation of removal of the tumour with the portion of the os uteri from which it grows." According to Dr. Andrew Anderson, "the basis" of the cauliflower excrescence "is a membrane of extreme tenuity, ramifying most complexly, amply supplied with blood, and possessing the power of forming from that blood

[1] ANDERSON (Andrew):—Edinburgh Monthly Journal, vol. for 1842, p. 885.

a whitish 'cell-substance,' which is deposited in a layer around it." He conceives that "the white substance which constitutes the bulk of the structure is formed by the membrane as a matrix, and from the blood with which that membrane is supplied, by a change in the corpuscles." He had no opportunity of examining the characteristic "watery discharge;" but he believes that it will be found to flow from the white substance directly, probably in consequence of the bursting of the external layer of cells, they being as quickly reproduced within; that thus a constant drain from the blood is going on, and made more exhausting by occasional actual hæmorrhage when the tumonr happens to be congested, or to be accidentally injured.

It appears, then, from Dr. Andrew Anderson's researches, that cauliflower excrescence differs from every known malignant tissue in its mode of growth. "It grows *by imbibition from the blood*, but *beyond the capillaries*." This view of the morbid anatomy of the disease, its uniformly fatal issue when left alone, and the comparative success of Professer Simpson's operations, would induce me, if consulted at a very early stage, unhesitatingly to advise excision, provided the diagnosis demonstrated the growth to be of that description which Dr. Andrew Anderson has described. If asked at a later period, I would not advise the same course to be adopted, unless the symptoms were, as in the case of Mrs. G., so urgent as to threaten speedy death; and then, we are not only justified in operating, but we are imperatively constrained to do so. If an operation be decided against, the proper treatment to adopt would, I apprehend, consist in the use of astringent anodyne injections, and gallic acid—internally as a palliative. Each case will, however, demand its own special appliances.

The question as to the disease being hereditary I do not now enter upon. I may state, however, that the mother of my patient died from what was described to me as "cancer of the womb."

ESSEX HOUSE, PUTNEY;
November, 1850.

POSTSCRIPT.

Paris, 1*st September*, 1875.

Since the occurrence of the case of Mrs. G., I have not met with labour complicated by cauliflower excrescence of the uterus; and during that long period I have notes of only one case in which I have seen the disease in conjunction with pregnancy. I only saw the case twice to which I now refer—on two successive days.

The patient, a Spanish lady passing through Paris, was alarmed one night at her hotel by a sudden and considerable sanguinolent discharge from the vulva, which she looked upon as the precursor of abortion. The os uteri was closed. Around the os a number of small excrescences could be felt by the finger. On examining by the speculum, these excrescences were at first found to be mostly concealed by loose clots, and after the use of an injection of alum neither the clots nor excrescences were very visible. The latter, collapsed in consequence of the flux and shrunken by the use of the astringency of the alum, felt to the touch, and seemed to the eye, only like slight rugosi-

ties. Before I saw this lady in her Parisian emergency she had consulted physicians in London and had been told by one of them that she had an affection of the womb which, though not incurable, was of a very serious character.

Since I published the case of Mrs. G. in 1850, I have, in a certain number of cases, sanctioned the removal of this disease by the knife; and in three cases I have myself performed excision. In my own three cases the operation was followed by a long respite, more or less complete, from pain and exhausting discharge. Neither by excision, the use of escharotics, nor by any other means, have I seen any permanent cures accomplished.

In my more recent cases I have used as an injection the infusion of the leaves of the eucalyptus globulus, or a mixture of from one to four drachms of the tincture in eight ounces of slightly tepid water. Injections of the eucalyptus are spoken of by patients as refreshing and comforting. They not only soothe and cleanse, but they also act as disinfectants and astringents.

The tincture, decoction, or essential oil of the eucalyptus globulus, gallic acid in pills, and the *Brit. Pharm.* liquid extract of ergot, all prove efficacious in moderating the discharge. Perhaps gallic acid is the most reliable of the three, but this is an impression only, for I have not had a sufficient number of cases on which to base a confident comparison.

In simple uterine catarrh, however, I may remark that I do not know of any remedy equal in value to preparations of the eucalyptus globulus. In such cases I have several times, with most satisfactory results, simultaneously administered them by the stomach and in the form of injections. As Gubler has shown, the anti-catarrhal virtues of eucalyptus are most remarkable. With increasing experience

of its power I more and more employ it in bronchial, vesical, and uterine catarrh, in gonorrhœa, and in gleet.

The following are the formulæ which I ordinarily employ :

Tincture of Eucalyptus Globulus.

Leaves, finely chopped, 1 ounce ;
Rectified spirit, 1 pint.
Macerate for two days in a closed vessel, then agitate and filter.

DOSE :—One drachm in water twice or three times a day.

Infusion of Eucalyptus Globulus.

Leaves, finely chopped, ½-ounce ;
Boiling water, 1 quart.
Infuse in a covered vessel for two hours and strain.

DOSE :—From half an ounce to an ounce and a half twice or three times a day.

Essential Oil of Eucalyptus Globulus.

This is a very convenient, elegant, and useful preparation. I often prescribe the essential oil in the capsules prepared by Delpech of Paris. Each capsule contains 0·15 centigr., that is, four drops. These capsules are at present prescribed very much by Drs. Gubler, Tardieu, Pidoux, and other Parisian physicians.

From three to six capsules may be taken in the twenty-four hours. I find that they occasionally induce nausea, an effect which I have not been able to trace to ordinary doses of the tincture or infusion.

As a gargle or vaginal injection, and for external use, I

sometimes order the infusion, varying the strength according to the nature of the case. Generally—to save time and for convenience in travelling—I order the patient to prepare the lotion or injection by adding a drachm of the tincture to six or eight ounces of cold or tepid water. The strength of the injection can thus be modified from day to day in accordance with general instructions given to the patient.

Having been somewhat led away from the disease more immediately under consideration into general remarks upon some of the therapeutic uses of eucalyptus globulus, I may as well add my experience of its remarkable power of destroying the fœtid odour of morbid discharges *without the substitution of another unpleasant smell.* I have found that in hospital practice and in private sick rooms, patients, their associates, and attendants, often complain of the vapour of creasote and other common deodorising agents. No such complaints are or can be made of the eucalyptus, however freely it may be used. I speak from an extensive trial of eucalyptus lotions in horribly offensive discharges in cases of ozæna, cancer of the tongue and throat, cancer of the uterus, gangrene, and other affections attended by fœtor.

VIII.

VALUE

OF THE

DARK ABDOMINAL LINE

AS

A SIGN OF RECENT DELIVERY.

From Edinburgh Monthly Journal of Medical Science, February, 1844.

DIAGNOSTIC VALUE OF THE DARK ABDOMINAL LINE.

It is remarkable that in this observing and scribbling age, no one has as yet [Feb., 1844] publicly corroborated, disputed, or even commented on the value of the Dark Abdominal Line, as a medico-legal test of recent delivery, though more than a year has now elapsed since Dr. Turner first brought it prominently before the profession, through the medium of *The Edinburgh Monthly Medical Journal.* In none of the recent publications on Forensic Medicine or Midwifery has it been even adverted to, so far as I am aware, except in the new edition of Dr. W. Campbell's work on the latter subject, in which it is merely alluded to in vague terms. His words are:—"A broad, purplish, or brownish line, extending from the umbilicus to the symphysis pubis, has been strongly insisted upon by some writers, as another distinguishing mark."[1]

This is the more to be wondered at, as Dr. Turner was unquestionably the first author who directed special attention to this interesting appearance, though it is likely to have been often previously observed by others.

The mention of the dark line by Lecieux appears to be accidental, as it occurs only in the detail of one case, and is

---

[1] Campbell (William):—System of Midwifery: Edinburgh, 1843. See page 137.

not adverted to in the general statement of his opinions as to the respective value of the signs of recent delivery. The case referred to is that of Nanette Tillard, reported by LECIEUX, at p. 68 of his *Considérations sur l'Infanticide.* (Paris, 1810.) She was delivered on the 9th, and the examination was made on the 12th November, 1809. The whole of the report regarding the appearance of the abdomen is subjoined:—"Le ventre était souple; la peau était laxe, plissée, parsemée de petites lignes rougeâtres, blanchâtres, luisantes, entre-croisées en différens sens, et qui, de la région des aines et du pubis, se dirigeaient principalement vers l'ombilic: *on voyait aussi une ligne brunâtre qui du pubis se portait à l'ombilic*, et on reconnaissait que la ligne médiane des muscles abdominaux avait souffert une grande extension; car, en la parcourant dans toute son étendue avec l'extrémité des doigts, on y trouvait un écartement très-marqué, surtout du côté de la région ombilicale: enfin, à travers les parois du ventre, on sentait le corps de la matrice, qui était très-volumineux, ferme, arrondi, s'élevait à peu de distance de l'ombilic, se resserrait et se contractait encore d'une manière très-sensible sous la main qui le pressait."

In Dr. Montgomery's work on the *Signs and Symptoms of Pregnancy*, there is possibly obscure allusion make to the dark line. It does not, however, clearly appear from the context, that Dr. Turner was anticipated by this distinguished author.

The following is the passage of Dr. Montgomery's work referred to. The clause to which special attention is called is printed in *italics*:—"The abdomen is full, its integuments greatly relaxed, or even thrown into folds, especially in those who have borne several children; the skin is remarkably moveable on the subjacent muscles, and occasionally the

muscles are found separated along the median line, and we recognise those light-coloured broken streaks or cracks already mentioned, which are generally most numerous from the groins and pubes towards the umbilicus, which is often found projecting, and of a conical form; *in some cases, there is also to be seen, extending between these two points, a brown line, of about a quarter of an inch in breadth, especially in a woman of dark hair and strongly coloured skin.*" Pp. 303, 304.

My experience accords with that of Dr. Turner, inasmuch as I have, like him, almost in every case in which I looked for it, observed in the recently delivered, a dark abdominal line or stripe extending between the pubes and umbilicus, and commonly going up even to the ensiform cartilage; but unfortunately for the value of this appearance as a medico-legal test, I have discovered that it often manifests itself in males, and in females independently of delivery. The main object of this communication is briefly to make known the various circumstances in which the dark abdominal line has been observed. Before doing so, however, it is necessary to quote Dr. Turner's conclusions, so that the reader may more fully see the bearing on the subject of the subjoined clinical report.

Dr. Turner's Inferences regarding the Dark Abdominal Line.

"1. The *dark line* will at least be useful as an addition to the aggregate mass of the signs of delivery.

"2. Being so constantly observable after delivery, its absence in a suspected case may, of itself, and *à fortiori*, where other indications of a similar tendency are present, be regarded as negative evidence of no slight value.

"3. On this account, too, it will go far to supply the

place of another sign, to which very great importance is attached,—laceration of the fourchette,—in the numerous cases where the latter is wanting. Where both coexist with the usual signs, the evidentiary force of the whole will be irresistible.

"4. Where there is no *corpus delicti*, the presence of the dark line will be presumptive evidence of itself, that the woman has given birth to a viable child: along with other similar indications, the presumption will be very strong.

"5. Where there is a *corpus delicti*, the presence or absence of *the line* will serve as a test of the accuracy of the opinion formed from an examination of the child's body, respecting the maturity or immaturity of the same.

"6. And it will thus occasionally give some assistance, where difficulty exists, in identifying the body of the child found, as the offspring of the accused.

"7. The *dark line* will enable us to detect the occurrence of delivery at a greater distance of time after it, than the period fixed by authorities as the latest at which an opinion ought to be given.

"8. The changes occurring in *the line* at different periods, might even, had our knowledge of them all the precision of which it is susceptible, serve to indicate in some cases, with an approximation to accuracy, the time at which delivery took place."[1]

The circumstances in which I have found *the dark abdominal line* are as follows:

1. After delivery at the full time.
2. After abortions, and premature delivery.
3. During pregnancy.

[1] TURNER:—Edinburgh Monthly Medical Journal, August, 1842. P. 679.

4. During menstruation; and in other states unconnected with pregnancy or delivery, and,

5. In male patients suffering from certain affections of the pelvic and abdominal viscera.

1. *After Delivery at the full time.*

For some time after the appearance of Dr. Turner's papers, I unfortunately limited my own observations, and the inquiries which I made among my friends, to the cases of women recently delivered. As these researches only tended to corroborate his statements, the particulars were not fully noted at the time, and frequently no record of them was kept. Another reason for the details regarding this class of cases being very scanty, is that a number of the women were seen by me only once or twice, and that casually in several instances. This is the less to be regretted, as all the cases spoken of under the four other heads of the paper, were made the objects of almost daily clinical observation.

Since the publication of Dr. Turner's first memoir, up to this date, I have examined thirty-one women with special reference to the dark line. They were delivered at or about the full time, and were examined within periods varying from a day to three weeks after accouchement.

In three of them only did I fail to detect the line; and with regard to these exceptional cases, some explanations can be given. One of the females was a poor woman whom I only saw once, and that hurriedly in a dark habitation; she had been delivered about two days previously. The other two were also only seen once, and in both instances, within forty-eight hours after the event.

Of the total 31 recently delivered women in whom it

was looked for, 11 were patients of Professor Simpson in the Lying-in Hospital, just before that institution was closed. The circumstances in which they were first seen by me are worth mentioning. In May last, when lecturing upon the Signs of Delivery, I took occasion to speak of Dr. Turner's test; and, after lecture, two gentlemen present expressed a desire to obtain permission to search for the line in the patients then in Dr. Simpson's Hospital. Having obtained leave, we went together, and inspected the women then in the house, who had been delivered. In all of them —11 in number—we found the dark abdominal line. It varied considerably in intensity, being of the deepest hue in two women of dark complexions, hair, and eyes. Both patients had been about nine days delivered. Contrasting the aspect of the line in some fair women then in the wards, with it in these two persons just mentioned, it was noticed that in the former, it was much less striking; and it may be pretty confidently stated, that the intensity of the line, like that of the areola, varies according to, and corresponds with the complexion of the woman. I may here mention, that in two persons of dark complexion, I have noticed that the line which on a first examination was only of a dusky yellow colour, afterwards became black and inky, the whole surface of the abdomen at the same time assuming a dingy hue. The first examination in one of these cases took place on the third, and the second, on the tenth day after delivery. The other case was seen on the second day, when no line could be detected; again on the fifth, when it was like a yellow stripe; and upon the eleventh and fifteenth days, it was reported as being dark and well defined. One of the 31 cases was seen only when in labour, when the line could be detected, but that with difficulty. My friend who had

charge of the patient, informed me that he saw it some days afterwards very distinctly, and repeatedly on subsequent occasions.

2. *After Abortions, and Premature Delivery.*

This is the class of cases regarding which the best opportunities of making observations have been afforded, in consequence of a number of pregnant women having come under my charge in the Hospital, with the fever at present prevailing, a peculiarity of which is, that with hardly an exception, such persons abort. The abortions generally take place at the crisis of the first attack, which is, in other words, about the 5th, 6th, or 7th day of the disease. If the patient get through this period of hazard, the initial paroxysm of the second attack determines miscarriage. A few cases go on till a third attack; and I have been told of one pregnant patient who went through three attacks of the epidemic without even any uterine symptoms to excite alarm. As a general rule, however, pregnant women seized with the now prevailing epidemic fever miscarry at some period of its course.

Six of my own hospital patients who aborted in the fever were made the object of regular observation and report with regard to the line. Several others were also seen both in and out of the hospital, but were not carefully noticed; so that the statements made with reference to this division of the subject are confined to the former class of observations. For the sake of brevity and clearness, the principal facts regarding them are summed up in a tabular form. In one only of the six cases was the line absent. In all of them, with one exception, it was less marked than in those of similar complexion delivered at the full time.

TABLE I.—*Fever Patients who Aborted in Hospital.*

Name and age.	Complexion, &c.	Summary of reports on the line.	Additional particulars.
1. Lucy Gartlan, aged 22, unmarried.	Florid complexion, red hair, and light eyes.	She was under observation 10 days before, and 16 days after abortion; *the line was carefully and often looked for, but never seen.*	This was a first pregnancy in its 6th month. Labour set in with the second attack of the fever, which was on the 14th day from the first seizure. Abortion happened on the following day. She was admitted into hospital on Sept. 9th, 1843, and dismissed Oct. 4th. The case is fully detailed in the author's treatise on the epidemic of 1843, p. 19.
2. Anne Stewart, aged 21, married.	Delicate rosy tint on the cheeks, dark blue eyes, and darkish brown hair.	Aborted (3 days before admission) on the 5th, which was the critical day of the fever. A dark abdominal line was seen on admission, extending from the pubes to a little above the umbilicus. It was never very deep in colour, but became gradually more distinct up to the 8th day after abortion, when it began gradually to fade. When last reported on the 15th January, it was described as "a very faint dirty yellow stripe."	This was a first pregnancy, in its 4th month. She was seized on December 14th, admitted on the 22nd, and had her second attack on the 30th, being 17th day from the commencement of the disease. She was dismissed 23rd January, 1844.

3. Isabella Toffts, aged 16, unmarried.	Dark brown hair, fine skin.	Labour began on December 30th, at 4 p.m.; abortion happened at a quarter past 9 p.m. of 31st. To stop profuse hæmorrhage the cold affusion was applied to the lower part of abdomen; this was checked, but also the lochia. On the 1st and 2nd January, there was violent delirium, and almost no discharge. It returned somewhat on the 3rd January, and with it the line appeared for the first time. It became very distinct on the 4th and 5th January, on which days there were symptoms of peritonitis. After these were subdued, it became hardly visible. On the 10th it was reported that "the lochia had disappeared, and the line become very distinct." She entered upon her second attack on the 12th (17th from first seizure). On the 15th January the following report is entered:—"The abdominal stripe has become much more distinct since last described on the 13th. It is now as dark and well defined as I ever saw it in a woman delivered at the full time. The lochial discharge returned yesterday in great abundance, and is at present red and profuse. Her pulse is natural, and she is in all respects better than since the beginning of the second attack, which has been severe. It was ushered in by a sudden paroxysm of violent delirium, in which she tore her clothes."	This was a first pregnancy between the 6th and 7th month. She was seized on the 27th December, and admitted on the morning of the 30th, on the evening of which day labour began. She is still in the hospital.

Name and age.	Complexion, &c.	Summary of reports on the line.	Additional particulars.
4. E. M'Peak, aged 40, married.	Dark hair and eyes.	No dark line was seen. She was under observation for 27 days after the abortion, which took place between the 3rd and 4th month of pregnancy.	She has families by two husbands. She has had several abortions. Abortion took place on the 15th day of the disease, being the second of the relapse. She was seized on the 31st July, 1843, admitted on the 6th August, and dismissed on the 20th September, having been 46 days under observation in the hospital.
5. R. Fraser, aged 30, married.	Brown hair, and blue eyes.	The dark line was seen very distinctly on the 6th day after abortion; it was somewhat faded on the 9th, and on the 11th it became much more deep in colour than it had ever been. No subsequent reports were made till the day of her dismissal, the 18th after abortion, when it "had almost disappeared."	This was a 4th pregnancy. The abortion took place between the 3rd and 4th months of pregnancy.
6. Mrs. Cox, aged 27, married.	Dark hair, and light eyes.	The dark line was well seen in this case, both before and after abortion. It varied in intensity at times.	This was a third pregnancy, between the 4th and 5th month. She was seized September 23rd, 1843, admitted on the 29th, and dismissed on the 23rd November. The abortion and jaundice occurred in the relapse. The date of the abortion was the 25th of the disease. The case is fully described in the author's treatise on the fever of 1843, p. 76.

3. *During Pregnancy.*

About eight or ten patients in whom the line was seen after delivery at or about the full time, were also examined with reference to it during pregnancy. In several instances it was seen, but it was at least as frequently absent, if I can trust my memory on this point. Regarding two cases only of persons examined during pregnancy have I kept exact and satisfactory notes. The one was a patient who had a threatening of abortion about the seventh month, or at all events, a coloured discharge from the vagina, with some bearing-down pains. At this time, the line was seen like a dirty yellow stripe; but on the third or last day during which the discharge was seen, a very distinct blackish-blue line was observed extending from the pubes some inches above the umbilicus; on the following day, it became rather deeper in hue, after which it rapidly faded, and in a week had entirely disappeared. In four weeks from the time when the discharge had come on, it returned, though in a very small quantity: the line then reappeared for two days. Two days before delivery, no line could be detected, nor did the least trace of it appear, till the third day, when it was very faintly seen; on the eighth, it was well marked, and continued so for about a week, when it rapidly went away. The exact time at which it became invisible is not known; but it is supposed to have been about the twentieth or twenty-first day after delivery. The other person whose case was made the subject of special notice, was a young prostitute affected with gonorrhœa and condylomatous excrescences. She was seven months pregnant of a first child; and suffered also from slight thoracic disease. When seen in these circumstances for the first time, the abdominal stripe was very deep in colour, and extended from the pubes

to the ensiform cartilage, with a slight break at the umbilicus. As the local affections of the genitals began to improve, the line visibly though slowly lost its intensity : it never, however, entirely disappeared when the patient was under my care, and was distinct a month after delivery about the full time. I do not know how long it remained visible.

4. *In females during menstruation, and in other states unconnected with pregnancy or delivery.*

At first I was inclined to believe, with some of my friends, that in women in whom the line presented itself, there was always something in the state of the uterine system to account for it; but from the phenomenon being found to manifest itself also in the male, though perhaps more rarely than in the other sex, this idea was soon seen to be untenable.

Derangement, therefore, of the menstrual secretion is only one of the various causes which produce the line. I think that during menstruation the line frequently appears, and that along with it, the areola assumes a darker hue. I observed both phenomena in two consecutive catamenial periods, in the same patient. Professor Simpson tells me that he has seen the line during menstruation.

Mr. Rankine of Carluke has favoured me with the particulars of a case in which it appeared in a succession of monthly periods. He says :—

"Notwithstanding the almost impossibility, in private practice, of making observations of this nature, opportunities of casually doing so have occurred to me; and as these were confirmatory of Dr. R. Turner's cases, I was disposed to adopt the practical deductions announced in his interesting memoirs. Occasion to doubt, soon, however, arose, and I was at this juncture strongly reminded of the sensible prelude to that gentleman's first paper, in which we are cau-

tioned to 'exercise the strongest possible circumspection, both in receiving facts and drawing inferences.'

"During attendance on a young female, suffering from an injury which required frequent manipulation by the surgeon, with the abdomen exposed, I was arrested by observing (6th May last) the *veritable* 'dark line,' where a few days previonsly there was nothing of the kind. The patient was beyond suspicion; nor was there the slightest previous indication of pregnancy. But there could be no mistake: there the brand was fixed, from pubes to umbilicus, in alarming distinctness! The breasts were immediately examined: they were found rather full, with the areola distinctly though not prominently marked. This female, who is an intelligent person, instantly informed me that what I observed in the breasts was not uncommon; that immediately previous to menstruation 'that change always takes place.' With regard to the *line* in the abdomen she could say nothing, not having observed it before, but very frankly offered to pay attention to it. The result of four subsequent periods, occurring with marked regularity, is, that at each menstruation the 'dark line' appears: it is first seen three or four days previous to the discharge, and gradually disappears during the continuance of it.

"It may be proper to state that I witnessed the 'dark line' and state of the breasts only on the 6th of May, when the peculiarity was first observed, and this morning, being the fourth subsequent menstrual period. In the intervening periods, the patient herself made the observations, and after each, brought me a slip of paper cut the length and breadth of the 'dark line.'"

The following table exhibits a summary of the reports on seven cases, which I had an opportunity of making the subjects of minute and frequent inspection:—

TABLE II.—*Female (Fever) Hospital patients, in whom the Dark Line was observed, unconnected with Pregnancy or Delivery.*

Name.	Complexion.	Reports upon the line.	Additional particulars.
1. J. Graham, aged 16.	Dark hair and eyes.	The line was first observed upon the 11th day of the fever very distinctly, and afterwards varied much in shade, being much lighter in the interval than during the febrile attacks.	This girl had amenorrhœa of four months' standing, and exhibited marked hysterical symptoms in both attacks, but especially during the second.
2. A. Shaw, aged 19.	Dark hair and light eyes.	The line was first seen on the 21st day; it was less distinct on the 23rd; faint on the 24th; gone on the 26th; very distinct on the 28th; and gone on the 35th day.	Dysentery and severe abdominal pain had existed for two days previous to the first notice of the line, but it had not been looked for till the 21st day. On the 28th day, when it was very distinct, neither diarrhœa nor pain were present.
3. E. Menzies, aged 34.	Brown hair and light eyes.	The line was very distinct when seen on the 2nd day of the fever, and on various subsequent occasions. She had much abdominal pain, and was menstruating profusely, when the line was first observed.	This woman had had eight children, and had aborted three months previously.

4. M. M'Cabe, aged 25.	Dark hair and eyes.	On the 14th day of the fever a very distinct line was seen. She was then menstruating.	She had had no children.
5. Mrs. Tabor, aged 28.	Ditto.	A distinct line was seen on the 6th day of the fever. She was menstruating profusely when the line was first seen.	This person never had children.
6. Mrs. Morris, aged 45.	Fair hair and light eyes.	On the 6th day the line was very distinct. The line was very distinct after death. Died from the diarrhœa of phthisis.	This woman had had seven children and three abortions: the last nine years before the attack.
7. H. Rose, aged 26.	Black hair and blue eyes.	A very distinct line was seen on the 6th day of the fever. Abdominal pain.	She had had a child five months previously, and was then suckling it. She had not menstruated since delivery.

5. *In male patients.*

I have arranged all the observations which I have made on this subject in the following table:

TABLE III.—*Male Hospital Patients in whom the Dark Line was observed.*

Name.	Complexion.	Reports upon the line.	Additional particulars.
1. A. Stewart, aged 18.	Dark brown hair and blue eyes.	A distinct line was seen for some days, when the local symptoms were acute.	Prevailing fever; gonorrhœa. Pain in the region of bladder.
2. J. Connor, aged 47.	Grey hair and blue eyes.	On the 6th day a faint line was seen; more faint on 7th; gone on 8th; seen again on 14th day; gone on 16th.	Prevailing fever. At first he had constipation and abdominal pain; afterwards diarrhœa. At no time had he distension of the abdomen.
3. Wm. Dodds, aged 26.	Dark hair and eyes.	A very distinct line was seen on the 39th day, and it was equally marked on the 41st day.	Prevailing fever. This man had suffered from diarrhœa for eight days previous to the first notice of the line, when the former had almost ceased.
4. Wm. Robinson, aged 35.	Black hair and dark eyes.	On the 12th day a faint line was seen; also on the 13th and 14th days.	Prevailing fever. There was no abdominal pain or distension when the line was seen. It appeared simultaneously with diarrhœa.
5. B. Sparrow, aged 27.	Dark.	A very distinct line, appearing and disappearing as the symptoms varied.	The cause of his admission into hospital was the debility remaining after a severe attack of dysentery. He had also chronic pleurisy.
6. J. Dawson, aged 15.	Dark hair and eyes.	On 16th January complained of severe pain in the region of the bladder,	Continued fever. The line was first looked for and seen on the 9th day of

		much aggravated by the slightest pressure, and scalding pain in making water. This led me to examine the abdomen with reference to the line, when it was found as distinct as I ever found it in the female.	the disease. The case, which threatens to be severe, is at present under treatment.
7. J. Stevenson, aged 36.	Dark hair and eyes.	On the 16th January there was constipation and uneasiness of the abdomen, when a distinct, though not very deep-coloured line was found.	Phthisis in an advanced stage, with cavities. Still in the Infirmary.
8. Robert Menzies, aged 14.	Dark brown hair and dark complexion.	Upon 19th January, being the 5th of the "relapse," he complained of pain in the region of the bladder and uneasy micturition. Upon examination the penis was found to be in a state of priapism; and a very distinct dark line was observed extending between the pubis and umbilicus. Some days previously, when the abdomen was observed, no dark line existed.	Prevailing fever.
9. Jos. Flannaghan, aged 17.	Hair brown, light greenish eyes, rather fair, florid complexion.	On the 16th January severe abdominal pain being complained of, the line was looked for, but not found: on the following day, when there was some gaseous distension of abdomen, though the pain was less, a distinct line was seen.	Typhus fever, with typhoid exanthema.

Having stated the facts so fully, little remains to be added in the form of commentary. The following conclusions which I have come to, will I think be found correct by any one who will take the trouble to investigate the subject for himself.

CONCLUSIONS.

1. Some days after delivery at the full time, a dark abdominal line, such as Dr. R. Turner has described, is almost invariably present. The deepness of its hue is modified by various accidental circumstances, but particularly—like the mammary areola—by the complexion of the woman.

2. During menstruation and pregnancy, after abortions and miscarriages, a similar line is also most commonly seen; but generally, it is less distinct, than after a nine months' gestation.

3. The dark abdominal line is seen in women quite unconnected with pregnancy, delivery, or any affection of the uterine system.

4. The dark abdominal line occasionally appears in males, when the mucous membrane of the intestines, bladder, and urethra are affected; [and, it may be added, in other circumstances.]

5. From the diversity of causes which give rise to this appearance, its presence can be of no use whatever as a medico-legal test of delivery; although its absence in suspected cases might, in connection with other circumstances, strengthen the belief that the woman had not been recently delivered

EDINBURGH: *January*, 1844.

POSTSCRIPT.

PARIS: *September*, 1875.

With the permission of Dr. R. Turner I subjoin an extract from a much esteemed letter which I received from him on various professional and private topics about a year ago. My accomplished friend writing from Keith on the 25th September, 1874, favoured me with the following remarks on the *dark abdominal line*.

"A marked contrast with yours, my own life continues to be a very uneventful one—pretty much the same at the present hour as in 'the days of lang syne' when the *Edinburgh Monthly* was young." * * * * "I have re-perused your paper on the 'Dark Abdominal Line' in the Journal for February, 1844. I am not aware that anything *new* has been since published on the subject. I remember dipping, a good many years ago, into a French treatise on midwifery in which most of my practical deductions were adopted without acknowledgment.

"My original estimate of the diagnostic value of the sign was long ago moderated by the result of your investigations, by those of our lamented Simpson, and by my own later observation. In short, I withdraw *in toto* my eighth inference (as quoted in your paper), but would submit in self justification that it is one of a series of *merely provisional* inferences, before stating which I say expressly (Monthly Journal for August, 1842, p. 676):—'I by no means consider my experience as large enough to render my deductions conclusive.' I still, however, believe that if subsequently ascertained sources of fallacy be avoided, the utility claimed for the sign in my other seven inferences is not over-rated. In many cases of advanced pregnancy and of recent delivery, especially in dark-

haired and dark-eyed women, I hold that *the line* will be found very appreciably *blacker* and *broaaer* than in any other circumstances; whilst its almost constant presence in advanced pregnancy and recent delivery whether of *blonde* or *brunette* makes its absence in any instance a most valuable aid in the diagnosis.

"Since my first observations were published, I have met with the sign in a few instances early in the seventh month —comparatively faint and narrow in every case— but never at an earlier stage of uncomplicated utero-gestation.

"I have never been able to verify your observation [*Edin. Monthly Med. Journal*, Feb., 1844, p. 120], the accuracy of which, however, I do not question, that the line sometimes increases in depth of hue after being first seen *post partum*.

"As mentioned in my second communication on this subject in the Journal I had then—as I have had since—met with the line in various conditions of disease in both sexes; but in no instance of this kind, up to the present time, have I found it of what may be termed *puerperal* intensity. In these circumstances it now and then does me good service. For example, at the onset of infantile remittent fever, where the diagnosis from incipient acute hydrocephalus is confessedly often difficult, I have always on discovering *the line*, however faintly marked, pronounced for the existence of the former affection, and I do not remember a single occasion in which I have thereby been misled. In the Relapsing Epidemic Fever of 1843, which prevailed here about the same time as with you in Edinburgh, a faint abdominal line was observed in a large proportion of cases—in those in whom abortion took place and in others indifferently just as in your much more extended sphere of observation, as given in your work on the epidemic. The line is

also described [at p. 263 of vol. i of the *Library of Medicine*] as a common appearance in the tropical yellow fever, in which, indeed, it is said to extend sometimes 'as a pale cast of yellow from the nose to the pubes.' In typhoid fever, I frequently meet with a faint line between the umbilicus and the pubes."

These are reliable and clearly expressed clinical observations. They possess, moreover, a special interest and value as Dr. R. Turner's own careful modification of the views regarding the Dark Abdominal Line, which he published thirty-two years ago, "when the *Edinburgh Monthly Medical Journal* was young."

On the 23rd August, 1875, when visiting with Dr. Dyce Duckworth his wards in St. Bartholomew's Hospital, London, I saw a case of puerperal pigmentation of the mammary areolæ and the mesial abdominal line in which latter situation was then present a phenomenon I had never before observed in such cases—*progressive disappearance of the pigmentation by flaky desquamation.* Another interesting circumstance in this case was the probably embolic nature of the pneumonia for which the patient was admitted to the hospital. Dr. Dyce Duckworth kindly gave me some notes of this remarkable case of which I subjoin a brief summary.

Sarah S., aged twenty, was admitted to St. Bartholomew's Hospital on the 25th May, 1875, having been delivered of her first child about a month previously—that is to say, on the 27th April. She was, on admission, in a very anæmic and exhausted state. She was suffering from pneumonia of the lower lobe of the left lung. Both legs were œdematous. In the abdominal mesial line there was a broad stripe of

very dark pigmentation, and the areolæ of both mammæ were also of a dark hue. The pigmentation was deepest in the mesial line from the navel downwards, and it expanded towards the pubes. The whole surface of the abdomen was of an extremely dark hue.

The patient's illness dated from about a fortnight after delivery. She did not observe the pigmentation till about a week later. On the 3rd of August, it is recorded that the pigmentation was rapidly fading away. At this date, it was noted that scales were coming off in the mesial abdominal line. During convalescence, after taking some baths in August, the pigmentation began to clear away by flaky desquamation. When I saw the patient on the 23rd August, this process was obviously progressing.

The squamous affection which I saw in Sarah S. at St. Bartholomew's was a variety of that which Frank and others have designated *chloasma uterinum*, and which Willan and the older dermatologists would probably have called *pityriasis versicolor*, a term which is now generally restricted to the cases originating in the presence of a fungus. Frank subdivides the kinds of abnormal pigmentation which he calls *chloasmata* (or liver-coloured spots) into three groups; viz. those caused respectively by pregnancy, a vitiated state of the humours, and the abuse of cosmetics. Hebra and Kaposi describe five kinds of *chloasmata*, viz. 1st, *c. traumaticum;* 2nd, *c. toxicum;* 3rd, *c. caloricum;* 4th, *c. uterinum;* and 5th, *c. cachecticorum.* The first three he regards as *idiopathic*, and the two others as *symptomatic* affections.

Chloasma uterinum is thus described by Hebra and Kaposi:

"Though recent and even gynæcological writers bestow little attention on this disease, and even in part, marvellous

to state, confound these patches with pityriasis versicolor, yet, nevertheless, the existence of uterine chloasma as a special disease, consisting in anomalous pigmentation of the skin, is established and confirmed by daily observation.

"In order that we may proceed in our description in anatomical order, we remark, in the first place, that we sometimes meet with a brownish pigmentation on the face in females, which extends over the whole forehead, as high as the level of the hairy scalp, and is either of a uniformly yellow or dark brown colour, or presents isolated paler spots here and there. The latter, the streaks, do not always take a horizontal course corresponding with the wrinkles on the forehead, but are not unfrequently oblique, irregular, scattered here and there, or run from one frontal eminence to the other.

"In other cases, the dark pigmentation is confined to two symmetrical patches between which the skin remains of normal colour. They frequently arch over the eyebrows. Another time, the skin of the upper or lower eyelid is tinted a peculiar brown, whereby the whole countenance attains the expression of sickness of suffering. Sometimes such a brown pigmentation passes in a linear direction outwards for a certain distance from the outer canthus, like a continuation of the palpebral fissure.

"In the same way, we meet with the brown patches in other persons on the skin of the cheeks, on the upper and lower lips, and in the sulcus mentalis, but the parts of the face not mentioned, the nose, the cheeks, &c., do not always remain entirely free from pigmentation.

"In many persons the whole of the skin of the face is covered with a dark chestnut-brown discoloration, which extends to the neighbourhood of the angle of the lower

jaw. On the other hand, the skin of the ears and of the neck under the chin always remains exempt from pigmentation, and in such cases the lighter colour of these portions forms a very striking contrast.

"Of the remaining parts of the body, the areola round the nipple and the linea alba are those which are especially liable to such pigment patches and streaks.

"That all these pigmentary changes are caused by certain physiological and pathological changes in the female sexual organisation may be inferred from the fact that they never make their appearance before the time of puberty, that in many persons they only appear either before or during ordinary menstruation, whilst in others they accompany each pregnancy: and in many such persons, actual, manifestly pathological conditions of the internal sexual organs—uterus, Fallopian tubes, ovaries—are discoverable, such as profuse or scanty menstruation, ovarian tumours, uterine fibroids, infarction, polypi, cancer, &c.; and that, lastly, with the improvement or removal of these conditions the pigmentation also diminishes in its intensity or wholly disappears.

"It is true that uterine chloasma is often seen on the face in females who are neither menstruating nor pregnant nor show signs of any internal genital disorder. Such cases must, however, be regarded in the same light as the innumerable morbid conditions which have long been known under the name of *hysteria sine materia*. As it is now customary to attribute hemicrania, neuralgia of all sorts, obstipatio and periodical diarrhœa, cardialgia, globus, clavus, &c., to a uterine lesion, without, however, being able to determine the real nature of the disease itself, we must consider ourselves justified, on the strength of the above

details and analogy, in referring the pigmentatary changes named to a similar origin. He who only considers pregnancy, or demonstrable alteration in the sexual organs of any importance etiologically in regard to such pigmentary changes, is just as unable to establish the connection between the two processes as he who is content with the assertion that the so-called hysteria is the cause of the pigmentary change.

"It remains to be noted that all these chloasmata of the face, of the nipple, and of the abdomen disappear with the atrophy of the uterus and the physiological involution of the whole of the genital functions; so that we vainly seek for chloasma after the climacteric period, even when formerly such were present in abundance on these particular individuals."[1]

There is no objection to the term *chloasma uterinum* in our present state of very limited knowledge of the nature of pigmentary abnormalities. It is a convenient provisional name for a well-marked group of cases; but it must always be remembered that there are no physical signs by which uterine can be distinguished from other chloasmata.

I had under my care, in the autumn of 1874, in the Hertford British Hospital, a young man who, consequent upon a fall on the head from a ladder, slept, continuously, for a fortnight, and ultimately recovered after passing through a variety of curious physical and psychological conditions. This patient had, for several weeks, a stripe extending from the ensiform cartilage to the pubes, so broad and dark that had

[1] HEBRA (Ferdinand) and KAPOSI (Moriz):—Diseases of the Skin including the Exanthemata.—Translation for the New Sydenham Society, by Waren TAY. London: 1874. See 3rd Vol., pp. 13—15.

he been a recently delivered woman, it might very well have been shown as a typical case of *Turner's abdominal line.*

Hebra and Kaposi err in stating that "we vainly seek for chloasmata after the climacteric period, even when formerly such were present in abundance on these particular individuals." After the menopause, chloasmata are comparatively rare, and they then often disappear from women who have long had them: but I have seen them remain well-marked in women after the menstrual function had ceased, and in one such case at least in which there were no symptoms of uterine or ovarian disease. There are other statements in the interesting and instructive passage which I have quoted from Hebra and Kaposi which many with only a special field or a limited range of observation will be apt to accept, but which others with more varied opportunities will know to require modifications. For example, clinical facts testify to the general but not to the universal truth of the remark that the pigmentary changes of the mammary areola and linea alba "are caused by certain physiological and pathological changes in the female sexual organization," * * "and never make their appearance before the time of puberty."

I have within the last two years seen the dark abdominal line very conspicuous in two sisters at about the age of three years in one case and five in the other. One of those children had the line coincident with a fœtid sanguineo-purulent discharge from the vulva. The external genital organs were swollen and painful to the touch: the tongue was dry, the pulse rapid, and the skin very hot. Knowing that this child had greatly suffered from eczema of the face in early infancy, and having treated the father for alternation of eczema and asthma, I considered that the most important

therapeutic indication was afforded by the family diathesis. I therefore prescribed—together with mild general antiphlogistic measures—warm hip-baths morning and evening, and soothing lotions of moderate astringency—arseniate of soda, which I afterwards replaced by arseniate of iron, adding at the same time to the medication cod-liver oil in considerable doses. The acute symptoms soon subsided. In eight or ten days they had ceased, and with them the dark abdominal line quite disappeared. A chronic discharge continued for a month or six weeks, but during that period though I often looked for, I never saw the dark abdominal line. The case of this child's sister was essentially similar in respect of the symptoms, the treatment, and the dark line. Neither of these children ever had any periodically recurrent vulvar flux, nor any sign of precocious puberty.

Possibly the pigmentation now under consideration has sometimes a relation to that condition of the blood which exists in the puerperal state, in enteric fever, and in some other diseases in which the red corpuscles have a disposition to separate from the other constituents of the blood and to aggregate in masses. This condition is not of the nature of "inflammation;" for it is met with in chlorosis and in the prostration which follows protracted fevers. As the colour of the skin is in the epidermis only, and as its degree depends upon the greater or less admixture of pigment cells with the ordinary epidermic cells, it is not easy to say how the condition of the blood which favours thrombosis should also favour abnormal pigmentation. The coincidence of the two phenomena may be only a coincidence or it may afterwards be proved to be something more. Meanwhile, the fact is noteworthy.

I am informed by Dr. Dyce Duckworth that Dr. Andrew

(under whose care the case was admitted and by whom it was treated in the first instance) believed that the pneumonia was connected with the puerperal state, and was probably embolic. He was led to take this view from the history of the patient prior to the attack, from the irregular course of the pneumonia, and from there being evidence of thrombosis of the iliac and pelvic veins. This feature of the case is interesting. I have several times observed the coexistence of thrombosis and deep abdominal pigmentation both in puerperal and non-puerperal cases.

Pigmentation and its abnormalities is a subject of great obscurity, upon which it would be useless to expatiate theoretically till we can appeal to a much larger number of reliable clinical facts than have as yet been recorded. The occasional diffusion of the pigmentation—its occasional persistence—the analogous production of freckles by the sun and of sun-burning discoloration—the maculæ of syphilis—the pigmentation even of mucous membrane in Addison's disease—the pigmentation of vulvar mucous membrane in the pregnant rabbit—the pigmentation of certain dogs' mouths—and many other pigmentary anomalies—have all to be studied with a view to the induction.

IX.

CASE OF

DYSTOCIA

FROM

CYSTOUS KIDNEY

IN THE

MATURE FŒTUS:

WITH REMARKS ON INTRA-UTERINE CYSTOUS DISEASE OF THE KIDNEY.

[*Part of an Essay on "Intra-Uterine Cystous Disease of the Kidney," published in the 'Edinburgh Monthly Journal of Medical Science' for August*, 1844.]

CASE OF DYSTOCIA FROM CYSTOUS KIDNEY.

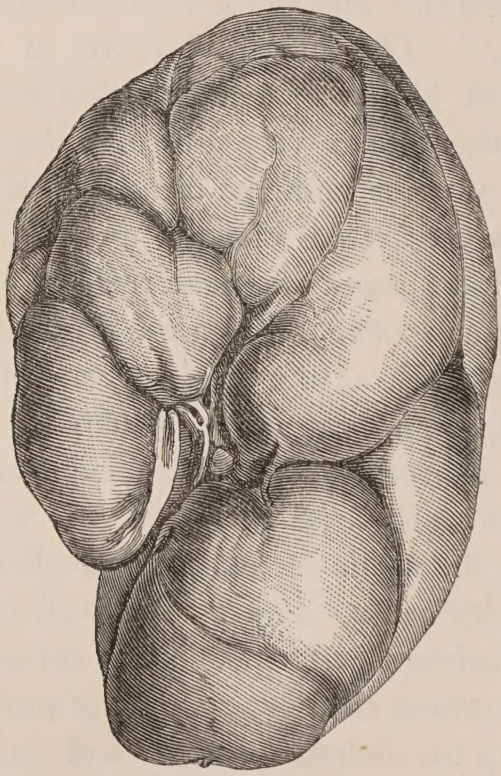
In 1844, when a lecturer on Forensic Medicine in the Medical School of Edinburgh, I received by mail from a medical practitioner residing in a remote part of Scotland, a small box, which—as was stated in the accompanying letter—contained an "interesting contribution to my medico-legal museum." The preparation was a cystous fœtal kidney—the left kidney of a male fœtus born at the full period of gestation after a very difficult labour. The cause of the dystocia was the immense distension of the abdomen of the fœtus by the cystous kidneys.

The head had passed the external orifice when the medical attendant arrived. From the great difficulty which attended the expulsion of the body, another practitioner was called in consultation. Manual interference was required to accomplish delivery. The child made one or two abortive attempts to respire and then died. It was of average size, excepting the abdomen, which throughout was greatly enlarged and very hard. The face, as well as the whole of the external surface of the body, was more than usually livid. Upon opening the belly, two large tumours were observed filling up the abdominal cavity and compressing the bowels. These were the kidneys. They were of similar

appearance, and almost equal weight. Such are the particulars which were sent to me by the gentlemen in whose practice the case occurred.

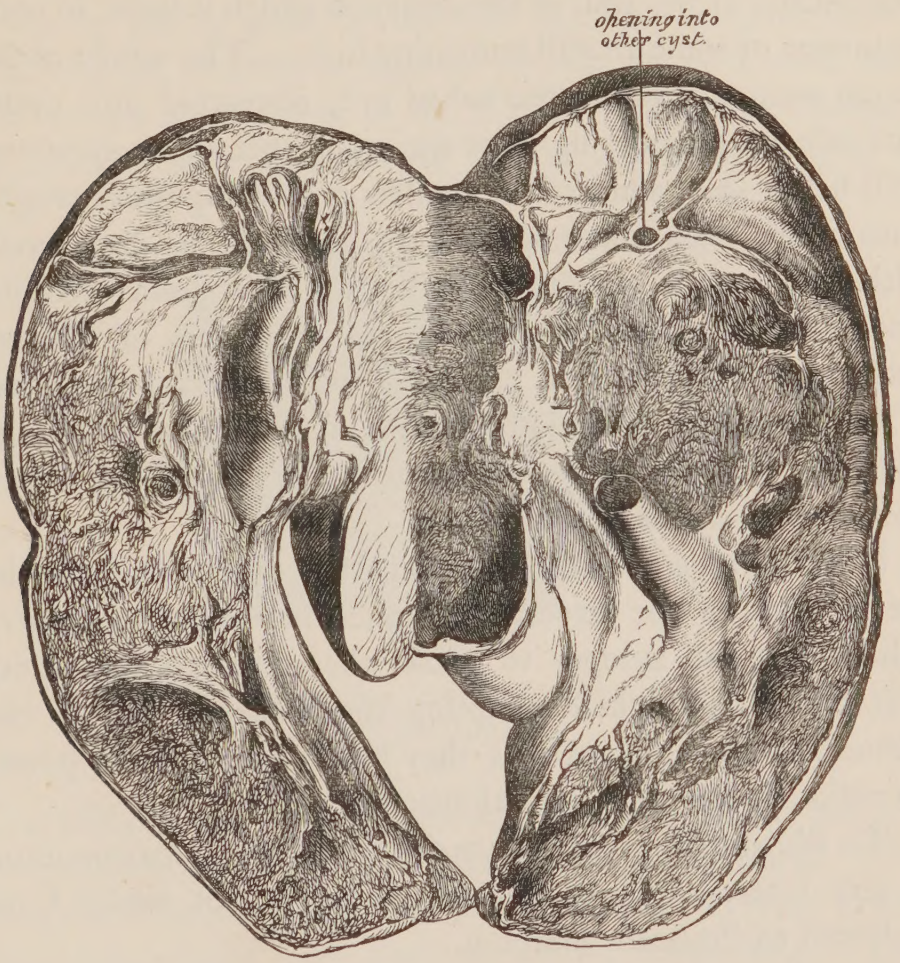
The kidney arrived in excellent preservation. Its external shape was very much what is natural; and it was lobulated like the normal fœtal kidney. It was somewhat flabby, apparently from the exudation of fluid, for the cloth and paper in which the preparation was packed in the small box were soaking wet.

It measured 4 inches in length, and $2\frac{3}{4}$ inches in breadth at the broadest part; the greatest thickness was $1\frac{1}{2}$ inch; the weight was four ounces imperial. After allowing it to remain for twelve hours in water, it was placed for twenty-four hours longer in diluted alcohol. It had then shrunk



THE CYSTOUS FŒTAL KIDNEY.

somewhat, and had acquired a firmer feel. The longitudinal section in the axis of the organ, which is represented below,



SECTION OF THE CYSTOUS FŒTAL KIDNEY.

was then made. Three large cysts were thus completely laid open at the upper and most superficial part; and a small rounded opening was exposed on the walls of one of them, which was found to communicate with a still larger cyst, which had not been cut into. Upon blowing in air through this foramen by a blowpipe, such as is ordinarily used in the dissecting-room, liquid was displaced; and as this took place,

the form of a large cavity was displayed by the aeriform distension. The round hole is well seen in the preparation, and also the outline of the wall of the cavity to which it leads, in consequence of some air still remaining in it. The whole of the organ seemed, even to the naked eye, converted into cysts, and when a magnifying glass was used, this appearance was still better seen, some of the smaller cysts being thus brought into view. No trace of renal tissue could be discovered, although search was made for it by Mr. John Goodsir, and other experienced microscopists. A sort of fibrous-looking texture was seen ramifying among the smaller cysts. There was no dilatation of the ureter or pelvis of the kidney. The blood-vessels seemed to be of calibre corresponding to the enlarged kidney.

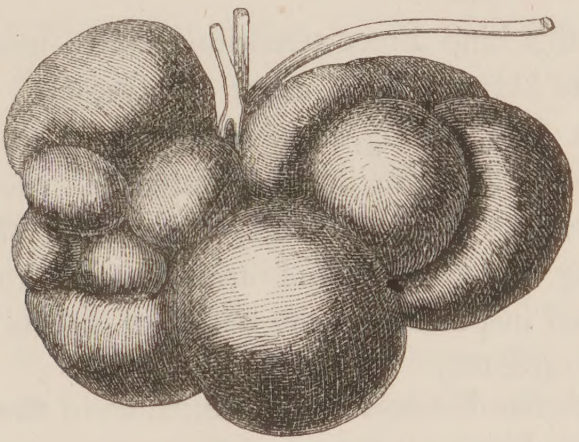
So far as a very hurried examination of the body of the fœtus enabled the experienced practitioners in the country who made the autopsy to speak, they reported that there was nothing abnormal excepting the kidneys. It is extremely to be regretted that they had it not in their power to make, at leisure, a careful autopsy.

To illustrate the importance of this remark, I may mention a very interesting case, for the particulars of which I am indebted to Professor Simpson.

The dissection of an infant found dead near Polmont was ordered by the authorities, as the reputed mother had been arrested on the charge of infanticide. The infant was well formed and of the full time. It had not breathed. There was pleuritic effusion into both sides of the chest. The kidneys were enormously enlarged, but not quite to so great an extent as in the case which I have described. They were sent to Professor Simpson, who, upon examining them, found that they had undergone cystous transformation,

independent of any enlargement of the pelvis, infundibula, or tubular structure.

In the fourth plate of the 6th *livraison* of Cruveilhier's *Pathological Anatomy* is figured the kidney of a child who died at the age of three in the Hôpital des Enfans Malades of Paris. The preparation was presented by Baffos to



SO-CALLED CONGENITAL CYSTOUS KIDNEY FIGURED BY CRUVEILHIER.

Cruveilhier, who regarded the disease as congenital, but has not stated the ground on which this opinion is founded. The ureter is of natural form and size, so that the cystous transformation cannot have been caused by obstruction. The whole of his description is contained in these words—"The kidney is formed by a certain number of cysts, of unequal size. An artery, renal vein, and ureter, are seen, but not the least trace of renal tissue. I regard this state of the organ as congenital. (*Je regarde cette disposition comme congénitale.*)"

It would be interesting to know upon what grounds Cruveilhier comes to this conclusion. The case which I have described sufficiently establishes the rapidity with which

this species of cystous renal transformation may take place; and we cannot suppose that it would require a less period of extra-uterine than of intra-uterine life to accomplish the change.

Kinds of Cystous Kidney in the Fœtus.

Cases of this kind direct attention to intra-uterine cystous disease of the kidneys as a cause of dystocia; and of the death of the child, during, at, or subsequent to delivery. To the accoucheur and the medical jurist, all such cases are full of interest. To the latter, they teach the necessity of examining the kidneys and urinary apparatus generally, in the judicial inspection of the bodies of infants supposed to have been murdered.

Renal Cystous Disease in the fœtus, as in the adult, is, at least, of three kinds:—

1. Hydatid Cysts;
2. Cystous Disease *from* obstruction of the uriniferous vessels; and,
3. Cystous Disease—*without* obstruction of the uriniferous vessels.

1. *Hydatid Cysts.*

Hydatid cysts, which may be described as fine membranous detached bags, are by no means rarely met with in the kidney of the fœtus. It will not be disputed by any one that their production in the kidney constitutes a distinct kind of cystous disease. Hydatids cysts, which really are entozoa, possess physical characters which sufficiently distinguish them from other encysted tumours. The kidney in the adult, as is well known, is very commonly infested

in its substance, and on its surface, with this kind of cystous disease.

2. *Cystous Disease from Obstruction of the Uriniferous Vessels.*

Cysts of this description form first in the centre; and when sufficient time is afforded, they encroach upon, and destroy every part of the organ. The mechanism of their formation is at once simple and interesting. Both in intra-uterine and extra-uterine life obstruction of the ureter occasionally takes place—in some instances from adhesive inflammation of the sides of the tube, and in others, from the ureter being blocked up by calculous matter. In the fœtus, malformation may perhaps be regarded as an additional cause. An accumulation of urine is occasioned beyond the obstruction, and a consequent distension of the canal as the fluid increases. This distension soon extends into the pelvis, infundibula, and calices, all of which, in their order, become gradually dilated. "The compressed cones," says Cruveilhier, "of the tubular substance become effaced and atrophied, so that a cavity takes the place of the projecting papillæ. The cortical substance, being in its turn compressed, yields, and, like the tubular, is converted into the fibrous tissue. In this way, each one of the tubular and cortical structures is soon changed into a fibrous pouch, which forms a sequel to the dilated calices, and constitutes the bottom, as it were, of the pyriform cavity which they represent." This kind of alteration may (from the seat of the obstruction) be confined to a group of calices and lobules, or to a single lobule; and when this is the case, a good demonstration is given of the individual independence of the cones constituting the kidney.

Most of our good museums afford examples of kidneys with perfectly healthy cones, by the side of those which have been transformed in the manner just described. In such circumstances, however, they are more or less compressed by the adjoining distended cones.

The fluid contained in the cysts which are formed in consequence of obstruction of the uriniferous vessels, has generally been found, in the cases in which it has been examined, to possess some of the properties of urine, even when the whole kidney *seemed* to be transformed into a cyst or cysts. In such cases, as Cruveilhier remarks, there must be some remains of renal tissue. He says, that he has frequently seen vestiges of it between two thin fibrous layers constituting the walls of the cysts. It is not correct to suppose that such changes only occur in extra-uterine life. The fœtal kidney secretes urine, during at least the last three months of utero-gestation.

3. *Cystous Disease without Obstruction of Uriniferous Vessels.*

This form of disease may be either complete or partial. The organ, or part of it, may be converted into one or more cysts; generally they are several, and most frequently numerous. This form of renal disease seems usually to commence in the middle of the cortical or granular substance; and the largest cysts will in most specimens be found to occupy the external part of the organ. Each cyst generally, and perhaps always, communicates with those adjoining by means of one or more circular and nicely rounded apertures, so that the organ, in whole or in part, becomes a multilocular pouch. Here the mechanism of formation is quite different from that which operates in the

cases of obstructed uriniferous vessels. It probably consists in the abnormal development of the cells of the areolar tissue, which binds together the different parts of the kidney: and in the absorption of the renal tissue, in consequence of its compression by the large and distended cells.

The kidney sent to me from a remote part of Scotland, and which is described and figured in this paper, is an example of intra-uterine cystous disease without obstruction of the uriniferous vessels.

POSTSCRIPT.

In the Essay, published in 1844, from which the preceding extracts are reprinted, a number of cases are collected illustrating the three forms of Renal Cystous Disease in the Fœtus.

On 1st February of the following year a paper by Dr. Bouchacart appeared in the *Gazette Médicale de Paris*, on "Hydatid and Hydatidiform Degeneration of the Kidney of the Fœtus." It contains several of the cases cited by me from authors, but not my original case of non-hydatid cystous disease without obstruction of uriniferous vessels.

The most interesting portion of Bouchacart's memoir is the following case communicated to him by Nichet of the Hôpital de la Charité of Lyons. It is entitled:—

Hyatid Degeneration of the Kidneys and Pancreas of a Fœtus; Difficult Labour; Embryotomy; Rupture of the Uterus, Death of the Mother.

"During the afternoon of the 12th April, 1839, M.

Nichet was called into the lying-in ward, to Catherine Possi, aged 23, a primipara, admitted at one A.M. in labour. The dilatation of the os uteri was proceeding slowly: the breech was presenting with the sacrum turned to the right. When the surgeon arrived, the thighs of the child had been at the vulva for a long time; and the traction which had been resorted to had been of no avail, in consequence of the abdomen of the child being impacted in the brim of the pelvis. The hand being introduced, the abdomen was discovered to be of an enormous size. As it felt soft, M. Nichet suspected ascites, and made a puncture below the umbilicus, but no fluid escaped. On carrying the hand a little higher, towards the thorax, the latter was discovered to be very much enlarged in its antero-posterior diameter, although it had lost something of its size by the approximation of the ribs. A sharp hook, applied in an intercostal space, had no effect in turning the child. Its thoracic and abdominal walls were then extensively torn, for the purpose of removing the obstructing body, whatever that might be. The surgeon laid hold of a nodulated mass, having its seat in the right hypochondrium, and which was attached to another still larger, which was brought away on introducing the hand a second time. Delivery was effected immediately after this.

"The body of the child was shrivelled; and life appeared to have been extinct for a considerable time. The extremities, especially the inferior, were very small. M. Nichet experienced at first some difficulty in determining the primitive seat of the two large fleshy masses which had occupied the abdomen; but upon examining this cavity he perceived that the kidneys were absent, and that these tumours were truly the missing organs.

"The right kidney was completely torn, but still exhibited its pelvis. It still retained its vessels and ureter. The general form of the right kidney was also preserved. Each kidney was three times the size of that of the adult organ, and occupied the whole space between the crest of the ilium and the summit of the lung, the diaphragm being squeezed up to the first ribs. The ribs themselves lay in contact, occupying but a small space, and pointed upwards. The enormous kidneys, smooth, and extensively nodulated, were enveloped in a fibro-cellular tunic, forming a capsule, which could be torn only with difficulty. Each lobe was separated from its neighbouring lobe by cellular partitions. The spaces formed by these partitions were filled by vesicles with thin transparent walls, the size of which varied from that of a pin's head to that of a pea. Upon squeezing the vesicles, there exuded a white, limpid transparent liquid,—this came in a jet when the wall of the vesicle was punctured. When the substance of the organ was torn, these vesicles were brought into view in great numbers. There was no trace of supra-renal capsules. The pancreas had preserved its natural size; but was transformed into vesicles like the kidneys.

"On the following day the woman was seized with symptoms of peritonitis, from which she expired on the fourth day after delivery. M. Nichet detected, on dissection, among other appearances, a rupture of the vagina, at its insertion into the uterus, into one third of its circumference, and to the left. This lesion was certainly caused by the prolonged uterine contractions, for the crotchet introduced into the womb, and applied between the ribs, had been constantly and carefully covered by the hands."—*Gazette Médicale*, February 1st, 1845.

X.

HERNIA OF THE UTERUS.

[*Read before the Medico-Chirurgical Society of Edinburgh 3rd June*, 1841, *and published in the Edinburgh Monthly Medical Journal for July*, 1841.]

HERNIA OF THE UTERUS.

When recently engaged in a study of Displacements of the Womb, I had occasion to examine the literature of Hernia of the Uterus. As the accident is of extremely rare occurrence, and as some of the cases on record are very difficult of access, I have thought that it might prove interesting to present in one essay such instances as were known to me.

Cases of Hernia of the Uterus may be arranged in two classes, viz. those in which the uterus is and those in which it is not gravid.

I. Hernia of the Gravid Uterus.

Let us first attend to those cases in which the uterus contain the product of conception.

The most interesting as well as the most recent of these cases occurred lately at Salamanca in Spain. It has been published and commented on in the "*Boletin de Medicina de Madrid;*" but literary communication with Spain is so difficult, that I have not been able to procure the number of that periodical which contains the article referred to. I have, however, received a separate memoir on the case,[1] giving what is, I presume, at least as good an account of it as that published in the journal. The author of the pamphlet, Don Julian

[1] Ladesma :—Fenómeno Raro de Preñez; ó Historia de una Hernia de la Matrix, &c. (Dos láminas finas. 8vo, pp. 23. Madrid, 1840.

Ladesma, professor of surgery at Salamanca, performed the operation of hysterotomy upon the patient.

Case 1. On the 26th of January, 1839, Professor Ladesma was called to visit in consultation Elena Ramos, aged 42, a married woman, residing at Salamanca. She was well-formed, of a somewhat ruddy complexion, with chestnut-coloured hair, and of the sanguineous temperament. The catamenia had always been regular up to the period about to be referred to; the pulse was good; the respiration free; and the temperature of the body natural. Her appetite and digestion were good, and she passed her stools and urine exactly like a person in the enjoyment of perfect health. The belly was soft and natural. At the inferior part of the hypogastrium, as is represented at fig. 1, there was a large tumour resting upon both thighs, but especially on the right one. Its base, or origin, was situated at the upper and right part of the mons veneris and extended over the superior portion of the pelvis, involving the integuments of the lower part of the belly of the same side, descending and prolonging itself so as to comprehend the labium and put it in an extreme state of tension. The base of the tumour at this time (26th Jan.) measured about 22 inches; its circumference at the middle was 25; and its whole length 23 inches. These dimensions became afterwards very different, the circumference of the neck diminishing, and that of the middle greatly expanding, so as to give the tumour an oval shape. It became subsequently more spherical, after using for some time, when on foot, a suspender appropriately slung from the shoulder. The common integuments covering the tumour differed little from their natural colour; but a little œdema and a few slightly varicose vessels were observed.

Upon proceeding to examine the tumour with the hand, Professor Ladesma detected within it a fluid, in which a solid body was floating. During the various manipulations

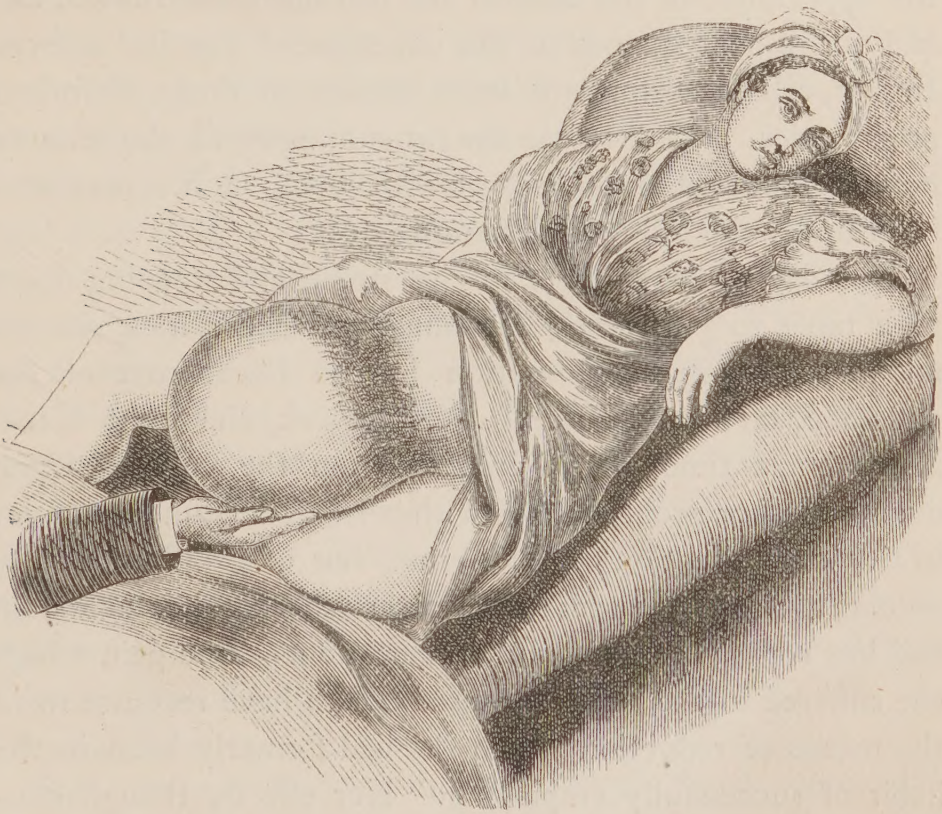


FIG. 1.—LADESMA'S CASE.

necessarily performed to ascertain the nature of the tumour, the patient neither suffered inconvenience, nor experienced any peculiar sensation. She believed that she was with child, and supposed that she felt the fœtus moving within the tumour.

The past history of the patient was carefully investigated, and the following facts were elicited. She had borne six children in an easy way and had always had good recoveries, being able in a few days after each confinement, to attend to her

usual household duties. Before marriage she was subject to a reducible inguinal hernia, which became more troublesome after the birth of her first child. For four months prior to the appearance of the tumour she had not menstruated, and had not in consequence of this experienced any bad effects. In fact, all her symptoms were similar to those of former pregnancies. At the time the tumour appeared, she believed herself to be three months gone with child. It first presented itself under the following circumstances:

One day when on foot in the street, and stooping down to a table to purchase some household necessaries, she felt an uneasy dragging sensation in the lower part of the abdomen, on the left side. Feeling sick, she went home. For a short time, blood dropped from the vulva. Upon examining her groin affected with hernia, she found a tumour in the usual situation of the hernia, but of a different consistence; she at the same time observed, that her abdomen had lost somewhat of its former elevation. The pain which she suffered in the tumour caused her to have recourse to all the means of reduction which she had formerly been in the habit of successfully employing. Her efforts, though continued for some days, were in vain. In her manipulations, she did not discover a fœtus. In six or seven weeks, however, after the descent of the tumour, she felt movements in its interior, and became reassured of her pregnancy. In these circumstances, she resolved to consult the physician and surgeon entrusted with the medical care of the indigent poor of the city. These gentlemen decided that the tumour contained a fœtus; and farther declared the case to be one of *extra-uterine conception*. Professor Ladesma, on the other hand, gave it as his opinion that it was "*a hernia of the womb, that organ having issued from the right inguinal ring, carrying*

with it the product of conception, and constituting a secondary hernia." He farther declared, that reduction was impracticable, and that when the patient came to her full time, it would be necessary to deliver her by a surgical operation. Ladesma thought the case so clear, that he neither looked at the breasts, nor made an examination by the vagina, before pronouncing his diagnosis.

A month after the consultation with Ladesma, the municipal council of the city were officially apprized of the case; and, as we are informed, this "illustrious corporation gave undeniable proofs of their philanthropy, by referring it to the medical authorities of Salamanca." These gentlemen, viz. D. Ignacio Montes, and D. Justo de la Riba, assembled the members of both faculties, by whom a special commission was forthwith appointed, consisting of three physicians and four surgeons. The physicians nominated were Dr. D. Francisco Rodriguez, Dr. D. Juan Gonsalez Gimenez, and D. Gumersindo Gandara; and the surgeons D. Pedra Velasco, D. Julian Ladesma, D. Facundo Gomez, and D. Juan Sanchez.

This commission met in the patient's house upon the 2nd of March. After an examination by the vagina, in which the os uteri could not be discovered, they unanimously concurred in the opinion of Ladesma already stated. The patient went on well. The stethoscope was frequently applied. Both the placental and fœtal pulses were found to differ very much, one day from another; and occasionally the former became inaudible for a few minutes. The sounds of the fœtal heart were very distinctly heard to be double, as in the adult: the beats varied from 130 to 150 in a minute, and were much more numerous than in the mother.

On the morning of the 6th of June, at the usual hour of making the observations with the stethoscope, the patient stated, that on the preceding night she had experienced pains in the lumbar region. Her pulse was higher than it had been on the preceding day. She was now placed in bed with the legs bent, so that the thighs formed an inclined plane, causing the waters to gravitate in the uterus upon the inguinal ring. On the night of the 6th, she continued to experience pains in the loins, and slighter pains in the uterus. At half past four on the morning of the 7th, though still not severe, the pains went on increasing, and the waters came away by the vagina. They seemed identical with those of a normal pregnancy at the full time. After they had been discharged, the tumour became considerably diminished in volume, which induced Professor Ladesma to attempt reduction, so that if possible the child might be delivered by the natural passages. His endeavours, however, did not prove successful.

In these circumstances, there being nothing to protect the fœtus from the strong pressure exerted upon it by the contractions of the uterus, after a good deal of unnecessary delay, the operation of hysterotomy was performed at half-past 12 o'clock, in the presence of fourteen medical gentlemen, among whom were the members of the special commission.

The patient lay in bed upon her back. The tumour, which formerly (as is represented in fig. 2) was thirty-two inches in circumference, had diminished to twenty-eight, after the discharge of the waters. Being satisfied by auscultation, that the placenta was situate about the middle and on the left side of the tumour, the operator chose that place for his incision. Here there was a narrow thick doubling or

fold of the uterus, extending longitudinally up to the ring; and within this doubling the placental *soufflet* could be perceived. The incision was made in the line of this fold, with a probe-pointed bistoury, with a projecting cutting arch. The

FIG. 2.—LADESMA'S CASE.

first incision divided the integuments and the peritoneum, leaving bare the womb. Having ascertained that neither the ovary nor Fallopian tube was in the way of the knife, the opening was continued into the interior of the uterus with great caution, lest the fœtus should be injured. A copious

hæmorrhage followed the cutting through the walls of the uterus.[1] At the inferior extremity of the wound, was seen, under the margin of the placenta, the child, with its legs doubled up towards its belly, the head touching that portion of the uterus at the inguinal ring, and the breech at the bottom of the wound with the back upwards. Without a moment's loss of time, the extraction of the child was commenced by the feet. After the trunk came out, the uterus contracted so as to threaten the child with suffocation, and to render necessary to save it, an enlargement of the incision upwards. After this, the extraction was completed. The child was a healthy female, weighing six pounds and a half, and measuring twenty-two inches in length. Though at first asphyxiated, she soon gave signs of life; and was solemnly baptized in the evening by the parish priest, having been carried to the font by the chief of the municipal council (*primer alcalde constitutional*), D. Antonio Crespo Rascon.

The mother, who bore the operation with serenity and heroism, remained in a state of great debility in consequence of the loss of blood both during and after the operation, although the hæmorrhage was of short duration. She had some convulsions, and cold sweats; and for a short time, the pulse was low and irregular. She was relieved by beef-tea, and an antispasmodic mixture.

In the evening, the wound was bathed in a decoction of mallows and hemlock; and during the night, light cataplasms of the same plants, spread on charpie, were applied

---

[1] The great hæmorrhage is not surprising, the womb having been opened at its most vascular part, viz., the place to which the placenta was attached.

to it. She slept none during the night; and suffered much pain, both in the wound, and in the lower part of the belly. She had twice a little beef-tea.

On the 8th, the following day, the countenance of the patient was more animated, the pulse somewhat frequent, and although there was some reaction, the temperature of the body was almost natural. She complained of violent pains in the lateral parts of the abdomen, and of a burning heat in the wound; the edges were of a livid colour. About 12 o'clock she had slight shiverings, the countenance was sunk, and the pulse feeble; but moderate reaction soon came on, she perspired gently, slept for two hours, and afterwards felt much relieved from pain. The edges of the wound were brought into apposition, by means of a bandage; and the applications already mentioned were continued.

The subsequent history of the case is minutely reported; but all the particulars of importance may be summed up in a very few words. The suppuration was at one time profuse; the patient suffered from inflammation of the womb, as well as of the peritoneum. The lochial discharge flowed from the vagina on the 12th of June. On the 12th of July she menstruated; and on the 11th of August walked out with her infant, both being in perfect health. The tumour remained small, not exceeding in size an ordinary scrotum. It formed a hysterocele in the inguinal ring, to which it was attached by adhesions.

Senertus, as after him Hildanus, and others, gives the two following cases, which, so far as I know, are now for the first time translated into English. I give them, somewhat abridged from the original Latin.[1]

[1] *Danielis Senerti Opera.* Folio, Lugduni, 1656, p. 654.

Case 2. Ursula, the wife of Martin Opitz, a cooper, when assisting her husband in bending a stick, to make a hoop for a cask, happened to receive a blow in the left groin, from its rebounding. Soon afterwards, a swelling appeared at the left groin, which, in a short time, increased to such a degree that it could not be returned within the abdomen. "Though a suspicion struck me," says Senertus, "that the uterus had fallen, neither she herself, nor the rest of the women would believe it, until at length the issue removed all doubt." The uterus, being gravid, expanded every day as the fœtus increased, and along with it, the cutis of the left groin, where the uterus had protruded. The integuments were so stretched, that the uterus hung forwards, almost like a bag, or large oblong gourd; and the motion of the child was at length evident, both to the touch and the sight. The woman herself, her husband, and friends, alarmed by this circumstance, applied to the College of Physicians for advice. When they saw that, on account of the fœtus being already full grown, there was no hope, if the case were left to nature, of being able to replace the uterus in the abdomen and so accomplish natural parturition, and that the life of mother and child would thereby be endangered, they pointed out, that relief could be looked for in no other way than by an operation. With consent of all parties, a section was accordingly made.

On the 21st April, 1610, when the time of parturition approached, and she was in labour (having first implored divine aid) Ernestus Hettenbachius, and Tobias Tandlerus, colleagues of Senertus, being present, along with Henricus Silbermannus, arch-deacon of the church, two midwives, and several respectable women, at 8 a.m. Jeremias Trautman, surgeon, made a section, assisted by C. Seesth, another

surgeon. The integuments and peritoneum were first divided: and the latter, which was easily recognised, appeared to be entire. The uterus itself, which easily protruded beyond the divided coverings, was opened without any remarkable hæmorrhage, or any very acute pain, as the patient afterwards acknowledged.

The section was made longitudinally, and the infant, with the placenta, easily extracted. In fact, no sooner had a way been made, than the child seemed instinctively to seek an exit. As there was no hope of replacing the uterus within the abdomen, the blood was cleared away as well as possible, and the integuments brought together by sutures. The uterus was not sewed. Although only slight inflammation followed, yet, as the uterus hung down without the abdomen, and could not be protected from the external air, during the healing of the wound, a purulent-looking membrane (membrana quasi purulenta[1]) made its appearance round the edges. This, however, was removed by the application of proper remedies. About the fourteenth day, the uterus had assumed a natural appearance, and continued daily to contract more and more, till it returned to its natural size. Some days afterwards, the lips of the wound became black, and bled very readily on being touched. They subsequently became gangrenous to such a degree, that sloughs could be removed without pain. Every unfavourable symptom, however, disappeared on treatment, the flesh round the wound was evidently returning to its usual state and appearance, and the wound itself was decreasing in size so rapidly, that its complete closure was looked for in a few days; and there seemed scarcely any

[1] A slough?

doubt of the woman's entire restoration to health. On the 16th of May, about 4 o'clock, she sat up for some time; when endeavouring to return to bed, she became faint, and expired within half an hour, never having been restored to consciousness. Upon making an examination of the uterus, it was found to be in a healthy state, and in no way gangrenous. The infant throve well, and lived till about the end of 1619—having therefore completed his ninth year.

Case 3. Senertus also quotes the following case, as related by Doringius, in a letter to Fabricius:—At Neisse there lived a poor woman, who had been married fifteen years, and had borne nine children. It happened at her first delivery, that in consequence of her great impatience and fretfulness, she was deserted by the midwives and other women present, and obliged to bring forth without any assistance. Although she thought that on this occasion she had suffered some injury in the abdomen, she was afterwards successively delivered of eight children in a natural way. Not long, however, after the birth of her ninth child, in the part where she had at first received the injury, she felt, under the skin of the left groin, as it were that a small part of the abdomen fallen down. She was alarmed, and told the thing first to her husband, and afterwards to such women as she had confidence in; but they could give her no other advice or consolation, than that she should trust to the mercy of God. In the mean time, the tumour daily increased in size, so that it soon resembled a cow's bladder very much distended. It finally acquired such magnitude and length, as to hang down even to her knees. From various symptoms, it was concluded that a living fœtus was contained within it.

The woman suffered very great pain, both when she tried to sit and to lie down ; and it was not without much reluctance, that she consented to have her burden suspended. When her time approached, the State of Neisse, as she was a poor woman, undertook the care of her, and the case having been stated to a physician, was by him communicated to the most skilful surgeons and also to midwives and other respectable women. After long and serious deliberation, the physician decided that there was no hope of a natural delivery, and that the only way of saving either the mother or fœtus was to open the tumour. At the same time, all declared that they had never either seen or heard of anything of the kind before. The decision was made known to the pregnant woman, and when she understood that she could in no other way be delivered of her fœtus, she signified her willingness to submit. The physician, therefore, and the surgeons, with the midwives, and other respectable women, met at an appointed time, and having implored the Divine assistance, opened the tumour, when, after many labour pains, and much anxiety, the fœtus was extracted. The child, we are informed, was baptized, and lived half a year ; but the mother, on the third day following the operation, having suffered excruciating pain, "piously slept in Christ."

CASE 4. There is a case given by Rousset, in his treatise on the Cæsarean section,[1] which ought, I think, to be classed with the preceding. In a patient, labouring under continued fever, he saw an inguinal swelling, in which was

---

[1] ΥΣΤΕΡΟΤΟΜΟΤΟΚΙΑ Francisci Rousseti, Gallicé primum edita, nunc vero Caspari Bauhini, M.D. et Profess. in Acad. Basiliensi Opera Latiné reddita. Basileæ, 1588, p. 14.

a cicatrix, presenting the marks of sutures. He was shown a boy, then seven years old, who, both the women and her husband assured him, had been extracted from the tumour in the groin, by means of an incision.

These five cases are, so far as I can discover, all the recorded instances of hernia of the gravid uterus.

II. Hernia of the Unimpregnated Uterus.

The two following cases, in which the uterus was not impregnated, are detailed by Lallemand, in whose practice at the Salpêtrière of Paris, they both occurred.[1]

Case 1. The patient, a washerwoman, had had several children without anything remarkable having happened during her pregnancies or at her accouchements. About the age of fifty (when the catamenia ceased) a tumour appeared in the right groin after some unusual exertion. It was of a pyriform shape, five finger-breadths in length, and remarkably hard. Though at first painful, it afterwards ceased to be so. Like many of her class in Paris, this woman was forced by age and penury to seek an asylum within the Salpêtrière, where she died at the age of seventy-one. M. Lallemand, upon dissection, found a very thick hernial sac, containing the womb with the Fallopian tube and ovary of the right side. The left Fallopian tube and ovary were pressing upon the external part of the inguinal

[1] The first case is published in the *Mémoires de la Société Méd. d'Émulation*, t. iii, and the second in the *Bulletin de la Fac. de Méd. de Paris* for 1826, No. 1. Vide also *Dict. des Sciences Méd.*, t. xxxi, article *Matrice* (ed. 1819).

ring. The vagina, the superior part of which had even escaped beyond the ring, was found pressing the urinary bladder against the pubis.

Case 2. The following is a case of crural uterine hernia. Maria Douberg, (also a washerwoman) of a lymphatic temperament, had eight natural accouchements. At the age of forty, eight days after her last confinement, and before resuming her ordinary laborious occupations, she perceived a small protrusion in the right groin, which she made unavailing efforts to reduce. A year afterwards, disagreeable feelings of cholic and nausea annoyed her, and caused her to wear a bandage; but she did not persevere in its use. The tumour increased, and became irreducible. At the age of seventy-two it inflamed, and she had nausea, vomiting, pain, and other symptoms indicative of a strangulation of the hernia. However, after a very abundant discharge of bloody serum from the tumour, it diminished in size, and the alarming symptoms disappeared. From the age of seventy-two, to eighty-two, the patient continued subject to nausea, pain in the belly, and occasional vomiting. At length, on the 19th December, 1815, symptoms of strangulation again manifested themselves, in consequence of which she entered the Infirmary of the Salpêtrière.

When she was examined in the hospital, it was found that the tumour in the right groin was of very large size, being about five inches in length, and four in breadth. In form, it resembled a three-sided pyramid. One of the sides looked anteriorly, the other posteriorly, resting upon the right thigh, the third passed down some inches below the vulva. The base was above, and the apex below. The circumference was greater in the middle than at the base.

It lay obliquely from right to left, and upwards and downwards. By carrying the finger above the tumour, the inguinal ring could be felt in its natural state, and immediately within the crural arch the hernial sac was supposed to contain a portion of intestine; but from the great size of the tumour, the trifling nature of the symptoms, the advanced age of the patient, and bad pulse, it was not deemed advisable to operate. The symptoms were relieved by laxative diet-drinks, and emollient enemata. The patient died; and upon examination of the body, the following appearances were observed:—Under the skin, which was healthy, there was a considerable quantity of fat. The sac of the hernia could hardly be discovered. Deeper, there was situated a lardaceous tissue in considerable abundance, which could be split into an internal and external layer. Below this, were seen the womb, the ovaries, the Fallopian tubes, the upper part of the vagina, (which was greatly lengthened,) two distinct folds of omentum, and two cysts, probably hydatids. It was a crural hernia. The bladder and rectum were in their natural positions.

Causes, Diagnosis, and Treatment of Hernia of the Uterus.

Even in the normal state of the parts, the uterus generally has somewhat of an anterior or lateral inclination. When this obliquity is trifling in degree, no inconvenience arises from it, but when great, it may, by occasioning displacement of the os uteri, cause difficult labour, prevent conception, or give rise to other symptoms requiring treatment. It is obvious that the causes which produce obliquity may, under peculiar circumstances, also give rise to hernia of the

womb. Malformation, or relaxation of the ligaments of the uterus; their unequal retraction after delivery; disease of organs within the pelvis; and displacement caused by the contraction of adhesions and bands of lymph, are probably the principal circumstances which bring the uterus into such a situation, as to enable it to protrude through the inguinal ring, or crural arch. In reviewing the above cases, it will be seen, that while probably some of these changes had taken place within the pelvis, there were obvious causes in operation, such as injuries in the groin, and pre-existing herniæ, tending to facilitate the exit of the womb, through one or other of the apertures already mentioned.

Eventration of the womb differs from hernia in this respect, that the organ escapes through an artificial opening, and not through the inguinal, or crural apertures. This sometimes takes place by separation of the muscles of the abdominal parietes. Ruysch gives the history of a woman who had had an abscess in the groin. Through an opening formed in it, the gravid uterus protruded, and during the latter period of pregnancy descended to the knees; nevertheless, the midwife, when called in to assist at the labour, succeeded in reducing the tumour, and delivering the woman by the natural passages. From the pre-existence of the abscess, and the success of the manipulations of the midwife in returning so enormous a tumour, this case was most probably one of eventration, and not of hernia, though it is referred to by some authors as belonging to the latter class. From the deficiency of the details furnished in this, and some other instances which I could cite, it has appeared better not to include them with the more decided and satisfactory examples of this rare affection.

In an anatomical point of view, the cases of Lallemand

are by far the most important, as they furnish us with a detailed account of what was seen on dissection, in conjunction with the symptoms observed during life. They point out the great difficulty of diagnosis in those cases in which the uterus is unimpregnated, from the similarity of the symptoms and appearances to ordinary herniæ of portions of the intestine.

There is one important diagnostic sign, which ought particularly to be attended to, when there exists any suspicion of the uterus being contained in a hernial sac. It is to introduce the finger into the vagina, and press on the uterus, for the purpose of observing, whether, when so doing, the hernia is moved, or increased in volume. This sign will also be equally available when the uterus is gravid, but there will be also other symptoms tending greatly to facilitate the diagnosis, such as the consistence of the tumour, its progressive enlargement; and subsequently, it may be, as in Ladesma's case, the movements of the fœtus, and the information afforded by auscultation.

In all cases, reduction ought in the first instance to be attempted; but the manipulations must be conducted with great care, should the existence of pregnancy be suspected. The application of appropriate bandages will also form an important part of the treatment, both preventive and palliative. When strangulation is threatened, if circumstances permit, an operation is indicated, to accomplish reduction. When the gravid uterus cannot be returned, the best plan will probably be, to support it suitably, and deliver, if possible, by the natural passages; or if this cannot be accomplished, by hysterotomy. The period at which the section should be performed, must of course depend upon various contingencies.